

DOCUMENT RESUME

ED 122 199

95

CG 010 728

AUTHOR Mitchell, Anita M., Ed.; And Others
TITLE A Social Learning Theory of Career Decision Making.
INSTITUTION American Institutes for Research in the Behavioral Sciences, Palo Alto, Calif.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
REPORT NO AIR-47600-6-30-FR
PUB DATE [74]
CONTRACT NIE-C-74-0134
NOTE 359p.; Some pages will reproduce poorly

EDRS PRICE MF-\$0.83 HC-\$19.41 Plus Postage
DESCRIPTORS Career Awareness; *Career Choice; Career Exploration; *Decision Making; Interdisciplinary Approach; *Models; *Occupational Choice; Program Descriptions; Research Projects; *Theories; *Vocational Development

ABSTRACT

This report contains an analysis of career decision making (CDM), a synthesis of theories and empirical studies related to CDM, and identification of areas in need of further research and/or development. The study includes contributions from the fields of psychology, economics, sociology, guidance and education. An attempt has been made to integrate the thinking of the various disciplines involved. The authors begin by looking at the nature and purposes of theory construction in general, then examine social learning theory as an adequate model for career decision making. Later chapters further explore the utility and implications of the social learning model; review the literature; suggest possible interventions implied in the theory; examine research priorities and describe the Careers Research Data Bank (CRDB) which can be shared among researchers. Numerous appendices offer extensive bibliographic citations; identified career researchers, programs, and data archives; and procedures for coding and using the Career Research Data Set Index. (NG)

* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *

ED122199

AIR-47600-6/30-FR

FINAL REPORT

Contract No. NIE-C-74-0134

EP# 74-1103

**A SOCIAL LEARNING THEORY OF
CAREER DECISION MAKING**

Edited by

Anita M. Mitchell

G. Brian Jones

John D. Krumboltz

BEST COPY AVAILABLE

With chapters from:

Waldemar R. Unruh

H. B. Gelatt

Steven M. Jung

And annotations and references coordinated by:

Barbara A. Sanderson

American Institutes for Research

Palo Alto, California

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

The project reported herein was performed pursuant to a contract from the National Institute of Education, Department of Health, Education, and Welfare. The opinions expressed, however, do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the Institute should be inferred.

U.S. Department of
HEALTH, EDUCATION, AND WELFARE
National Institute of Education

CS 010 728

TABLE OF CONTENTS

	<u>Pages</u>
Acknowledgements	i
Preface	i
Chapter I - Career Decision Making: Theory Construction and Evaluation - Waldemar R. Unruh	1
Chapter II - A Social Learning Theory of CDM John D. Krumboltz	13
Chapter III - Analysis and Synthesis of CDM Literature as Related to this Theory - Anita M. Mitchell	40
Chapter IV - Practical Applications: Illustrations of Program Interventions - H. B. Gelatt	54
Chapter V - CDM Research and Development Priorities - G. Brian Jones	67
Chapter VI - Data Resources for CDM Research - Steven M. Jung	82
Appendix A - National Advisory Panel, Regional Workshop Participants, and Conference Presenters and Reactors	A-1 to A-2
Appendix B - Bibliography Barbara A. Sanderson D. Randy Black Craig K. Ewert Joann L. Greene	B-0 to B-27
Appendix C - Annotations Barbara A. Sanderson D. Randy Black Craig K. Ewert Joann L. Greene	C-0 to C-218
Appendix D - Identified Career Researchers	D-1
Appendix E - Identified Career Research Programs/Institutions	E-1
Appendix F - Identified Data Archives	F-1
Appendix G - Procedures for Coding Data Sets for Career Research Data Set Index	G-1 to G-4
Appendix H - Procedures for Using the Careers Research Data Set Index Donald H. McLaughlin	H-1 to H-4

ACKNOWLEDGEMENTS

A project of this scope could not be completed within a one-year time period if it were not for the willing participation of many interested persons. The National Advisory Panel, participants of the four Regional Workshops, and the authors of papers and reactions to current issues in career decision making, presented at a conference sponsored by this project, were particularly generous with their input. Names of individuals in these three groups appear in Appendix A. Project secretaries Beverly Harlan, Susan McBain, and Jean Reynolds are to be commended for their patience and accuracy.

Special thanks are extended to Ivan Charner, NIE project monitor, whose friendly encouragement and perceptive reviews were especially appreciated.

PREFACE

This report is the result of a full year of cooperative planning and interaction among the authors. Chapter credits list the staff member who had principal responsibility for development of the chapter. However, the completion of each chapter reflected the pattern of team effort that characterized this whole study. Senior project staff each contributed to the content and preparation of all chapters.

Chapter I

CAREER DECISION MAKING: THEORY CONSTRUCTION AND EVALUATION

Waldemar R. Unruh

A. Background of This Study

Under contract with the National Institute of Education (NIE), the American Institutes for Research (AIR) conducted a study of career decision making. This entailed an analysis of career decision making (CDM), a synthesis of theories and empirical studies relating to CDM, and identification of areas in need of further research and/or development. This analysis, synthesis, and extension was designed not only to increase understanding of CDM, but also to improve prediction of decisions and their consequences, as well as to suggest ways that interventions in that process can make a difference.

The study embraced contributions from the fields of psychology, economics, sociology, guidance, and education. To help AIR insure that these fields were adequately represented, appropriately interpreted, and meaningfully integrated into the synthesis, a National Advisory Panel (NAP) was selected, with representatives from each of these disciplines. The six panel members (see Appendix A) represented theorists, empiricists, program developers, and practitioners.

A comprehensive literature search was undertaken, using computerized searches as well as book and periodical references. A bibliography (see Appendix B) was assembled from these sources and was expanded by NAP members as well as by participants in four AIR-NIE coordinated regional workshops held in the early Fall of 1974 (see Appendix A). A team of a research associate and three research assistants reviewed and abstracted the references and, with help from senior project staff members, selected those which appeared to bear most directly on the task of analyzing and synthesizing current knowledge as well as suggesting future research and development directions. The references that were annotated appear in Appendix C.

Probably the most significant--and difficult--task of this study was to integrate the thinking of psychologists, economists, and sociologists. Not only language, but perspective differences were encountered, and considerable effort was expended to insure accurate interpretation and representation of ideas from these various groups. Abstracts and annotations of economic literature were reviewed by an economist, and those of sociological literature were reviewed by a sociologist. An economist consultant assisted project staff with their analyses and synthesis and the National Advisory Panel provided critique and input during the refinement of the synthesis.

B. A Critical Delimitation

Although the project staff views the word "career" broadly to include all facets of life, this study focused on educational and occupational decision making. More specifically, the areas of inquiry were populations of decision makers, influencers of their decisions, and identifiable points at which school and work decisions are made. At the same time, the authors assume that the analysis, synthesis, and extension presented in subsequent chapters of this report are applicable to understanding and improving decision making in other life areas. These could include decisions related to personal and social development, citizenship, learning how to learn, and the use of leisure time.

C. An Overview of Chapter I

This chapter deals briefly with the problems of theory construction. It also takes a brief look at current theories and models of vocational choice and development and then looks specifically at social learning theory as an approach to constructing a more comprehensive model of CDM--a model which will provide a context for the interpretation and integration of individual, institutional, and environmental influences.

D. The Nature and Purposes of Theory Construction

When theories are proposed to structure questions of interest to science, they are usually propounded in such a way that they compete with each other in attempting to structure existing data and thus to attract researchers. One purpose of a theory is to convince others that one way of looking at a problem is more effective than another. It attempts to show how data may be collected and arranged; it provides a framework for interpreting the data; it defines important constructs which may themselves need further explanation; and it attempts to determine, at least to some extent, which questions are of interest for further research. It does not signify which questions should have priority in terms of such subsequent action, nor does it specify when or why later findings should be applied to the subjects it describes.

The purposes of theory construction are in the public domain. Thus we propose theories as collations of known data, as methods for coding events, as ways of translating interrelated concepts, as ways of stating relationships more parsimoniously, as ways of suggesting how data may be collected, and as sources of fruitful suggestions for research. In this study, the authors used a theory to suggest a preferred way of looking at a problem. The extent to which a theory used for that purpose is successful is largely determined by the number of questions it suggests and the number of researchers who are attracted to its use. While the practical applications derived from such a theory are certainly of interest, these are by-products which follow from implementing the theory at the research level. To move from theory to application directly, though it is seemingly more practical, may not always serve the best interests of the target community. The danger of premature commitments is, of course, extensively mitigated when the theory is well buttressed by previous research, both in the area of direct concern and in related disciplines. The CDM theory presented here has indeed a good many substantiated underpinnings. It has its basis both in knowledge about social learning theory and the social-economic-psychological research related to career development and counseling.

Practitioners and purveyors of practical techniques--professor of counseling and supervisors of counseling programs--often display a lurking distrust for theory. Such distrust may arise out of a lack of understanding of the function of theory and frequently from the shortcomings of theory itself. As a result, research and practice are often based on fortuitous perceptions of what is happening in the "real world." While such insights may appear to be more practical than pure "arm chair" speculation, they can be useless and even misleading because they are taken out of the total life context and therefore lack validity and are subject to faulty generalization. A sound theory, even though it is subject to modification, or perhaps even complete refutation in the long run, at least provides a framework for the interpretation of disparate data. Theory thus forms both the starting point for research and practice and the terminal point for evaluation and extension.

E. Some Definitions Basic to Theory Building

In an article on theory construction in The Second Handbook for Research

on Teaching Science (1973) discusses the meaning of various terms which are of concern here. He points out that theory in its simplest form is a method of symbolizing generalizable facts or laws and bringing them into some systematic connection. Thus the scientist observes and collects data, generalizes from the data, forms these generalizations into relationships, and designs experiments to test deductions based on these relationships. If the experiments lend support to the theory, and if the theory is assimilated by the appropriate scholarly community, it will replace other weaker theories, thus leading to major advances in a discipline and structuring its research activities. Some scholars refer to such structures or traditions as "paradigms." Unfortunately, the term "paradigm" has a variety of meanings ranging from describing the contexts of events as they relate to the Zeitgeist or "current of the times" to all-embracing descriptions of systems of thought. It is doubtful that such a vague term can be helpful for this AIR study of CDM where the first priority is to relate every day events to some more precise model for research.

The term "metatheory" has also been used in recent times. It suffers from the same shortcomings as the term "paradigm" because it can refer to the analysis and evaluation of theory itself or to a constellation of theories--that is, families of theories. Thus Fisherian experimental design and all of the statistical analyses, the concept of the normal distribution, and the theories of probability that grew out of it form a metatheory. It is unfortunate for one aspect of this CDM study that this confusion exists because it would be useful to have a term which describes the result of the assimilation of mini-theories into some larger unit which is more powerful than its subparts taken independently.

Another problem in definitions entails discriminating between the terms "model" and "theory." In common usage a model is often seen as an explication of a specific aspect of a theory and theory as a more generic term which lends sophistication to a series of interrelated facts and concepts. Kaplan (1964) suggests that the terms can be used interchangeably. Broadbeck (1973) recommends that the term "model" be used to describe what happens when a theory in one area is derived from another area in which a well-tested theory already exists. Snow (1973), however, points out that this is really a matter of theory translating. Given the present confusion of definitions, and the somewhat low level of theory construction in the social sciences, it seems best to remain with a more mundane definition. The authors therefore use the term "theory" to describe the way in which facts and constructs are interrelated to form a system complete with propositions and illustrative hypotheses which can be tested. Where required, "model" is used to clarify the theory in terms which are already understood. Until the relevant semantics can be usefully clarified, it is the authors' hope that differences in definition will not detract from attacking the problems that confront CDM approaches. The theory presented in the next chapter seeks to identify those problems and put them into context.

F. Criteria for Evaluating a Theory

A series of criteria were used to evaluate the theory developed in this study. There are ones that might be employed to judge any theory in its early stages--that is, before its validity can be assessed by research. Of primary concern is the desire that the theory should be testable. For this reason this study's theory has been spelled out in terms of propositions and hypotheses which can be subjected to research. Secondly, the theory should be consistent with known facts. While much CDM information is sketchy, the

next chapter attempts to show how it interfaces with the theory. This has the added advantage of indicating gaps in such information. Thirdly, a theory should lead to further hypotheses. Two later chapters in this report provide examples of how the theory can be used to predict and identify such priority questions for application and research. Fourthly, a theory should be parsimonious. The authors believe that the theory presented achieves this requirement because it demonstrates how a chain of events is responsible for behavior while making possible the specific analysis of significant events and processes. That is, it is possible to enter the progression at any point along the continuum to look more specifically at any given event or process. Finally, a theory must be communicable. The theory presented here is simple while not being naive about the complexity of human behavior; it is understandable while attending to important constructs; it is comprehensive without being cumbersome; above all, it is flexible without being so general that it predicts nothing. Hopefully, those who have devoted many years to the study of CDM will find that their own concepts can be related to the theory or will find new ways of making their own work more meaningful as they interpret it in a more comprehensive context.

G. Current Theories of Vocational Choice and Development

As indicated at the beginning of this chapter, a first step in this AIR study entailed analysis of existing theories and related research to determine the feasibility of synthesizing them into a more comprehensive CDM theory that would summarize current knowledge and suggest further lines of research and development leading to practical application. The authors considered listing existing models and theories and indicating the points on which they agreed or disagreed. While this proved to be an interesting endeavor in its own right, it was not a fruitful approach for this study's purposes. The main problem is that existing models have arisen out of specific concerns about highly structured aspects of vocational choice and development. They are predicated on different kinds of theoretical underpinnings and data with few empirical connections among them. Because they are based largely on perceived needs of the system (i.e., social institutions and organizations) and attributes of human functioning in highly controlled contexts, rather than on the basis of an overall theory of vocational choice and development interacting with environmental forces, the authors concluded that one theory could not be used as a way of checking another. There is thus no real probability for comparisons among them. In addition, it appears that no practitioner or researcher can say that s/he is using the framework of a particular theory to guide research and program development. At best, s/he has available as heuristic tools a loosely connected series of concepts and constructs.

A critical review of the available theories and models can thus be somewhat misleading because it tends to denigrate the thinking and research that has been done in this area. The strategy adopted in this study was to show how research and related concepts can be integrated by using a different theoretical approach. The following paragraphs briefly look at some classes of vocational theory and try to indicate both how these deal with selected aspects of the total problem and how the theory presented in the next chapter describes a more comprehensive view of CDM. For a more detailed summary of theories and models, the reader may wish to go to texts such as those byrites (1969), Jepsen and Dilley (1974), Borow (1973).

Crites (1969) has labelled one group of theories as non-psychological. These theories account for choice on the basis of accident, laws of supply and demand--the market place--, and forces which are largely controlled by institutions in society and are therefore beyond the control of the individual. An acceptance of the first of these--accident theory--as the explanation for vocational choice leaves little basis for a discussion of intervention. While accidents do appear to occur, the authors argue that they are accompanied by alternatives which still leave some room for choice, and that individuals generally do have some control over environmental events if they are capable of recognizing them. The range of choice may, of course, be extensively limited by factors which are largely uncontrollable in which case indirect intervention on environmental conditions may be desirable.

The second group of this set is basically economic in nature. It holds that individuals base vocational decisions on perceptions of "net advantage" and assumes complete freedom of choice and complete availability of information. Intervention consists mainly in the supplying of information. Economic approaches have usually focused on two issues: (1) human capital theory--a study of the determinants of individual incomes and the relationship of income to educational level, and (2) demand for education--the study of costs and benefits that lead to a "go" -- "no-go" decision about getting more education. The problem with these analyses is that they deal with a very limited range of "returns" (mostly pecuniary and a few non-pecuniary); they are "after the fact" in that they do not indicate what considerations or antecedents led to what decisions; and they have never been formulated within the context of a general CDM model. The human interactive processes which link information, internal coding and encoding mechanisms, and decisions are therefore left unclarified. Furthermore, their conclusions usually are not based on studies of individuals. As long as people act "as if" they knew that their actions would produce greater returns, the fact of cognition is incidental.

Sociological theories form the third member of this family of approaches. Most of the sociological studies have been based on the analysis of "work" and its meaning for the individual. Early developmental experiences, education, historical accidents, and on-the-job experiences are studied as influencers of decisions and of the goals people set for themselves. One of the best examples of this type of approach is that of Roe (1957) who stresses the influence on goals of the culture, sub-culture, community, school and family. Thus environmental events reinforce the development of certain goals and aspirations by creating a certain kind of climate to which individuals respond differentially. Such conceptions, frequently based on the case study method, tend to have limited predictive power and fail to specify the cognitive processes which mediate experience. Furthermore, the observation that almost any influencing factor can be "studied" as a correlate of the CDM process suggests the need for a general framework or model to guide research.

This project's authors concluded, then, that while the non-psychological theories have illuminated important aspects of CDM, it is clear that they have dealt largely with external, and often immutable forces which represent only one aspect of a much more complex process. Another large body of research and literature has been devoted to studying psychological traits and how these influence choice. Among the best known of these theories are those which

view vocation as a developmental process--that is, as developing over a period of time and in some sequence. Thus Ginzberg (1972) sees vocational development as synonymous with ego development; Super (1957) views it as an on-going process of self development through life stages; and Tiedeman (1963) perceives it as a series of progressively more complex decisions brought about through cognitive differentiation and integration.

Also common are the trait-and-factor theories in which a match is attempted between characteristics of the person and her/his job. The match is based on analyses of existing cadres of the work force, and it is not always clear whether there is a real cause-effect relationship or whether specific groups attract employees who are like existing groups. An element of dynamism is introduced into such theories by suggesting that prediction is possible only from stage to stage but not from some initial point in time to a final stage.

Inferred motivational states have also been credited by many theorists as influencers of vocational choice and development. Psychoanalytic theories make use of constructs such as defense mechanisms to explain the drives that initiate and maintain vocational behavior. (See Bordin, Nachman, and Sigel, 1963.) Based on the needs hierarchies of Maslow (1968), theories have been proposed which account for choice on the basis of needs for achievement, affiliation, etc. A similarly extensive body of studies has sought to show how interests develop and are worked out in terms of vocational choice.

While many of the psychological models have a certain persuasive attractiveness about them, they too deal only with selected aspects of what is clearly a much more complex process. Even the developmental models frequently treat it as if it were an all-or-none process or as if the stages of development were more important than what goes on in the total life of the individual. If the focus is on only the ultimate choice point, CDM may appear to be a very simple experience. However, this project's authors take the point of view that career decisions are based on a long, interrelated series of events which, in turn, produce anticipations that enter into any decision, even if it is a decision to do no work at all. This viewpoint maintains that choices are not irreversible and that a career path can be consciously influenced by direct (with individuals) and indirect (with their surroundings) interventions. The authors also maintain that, given appropriate skills--which are subject to training--the CDM process can be made more effective and satisfying. This is a value judgment, but it is one which is at least no harder to support than would be a decision to leave things as they are.

The instigation of this study's CDM analysis and synthesis does not represent the first time that a need for such an endeavor has been felt. The fact that non-psychological theories tended to neglect internal states and that psychological theories underemphasized environmental factors led Blau, Gustad, et al. (1956) to bring together a group of psychologists, sociologists, and economists in an effort to derive a general theory of vocational choice. Blau (1956) produced what he referred to as a "conceptual framework" to describe occupational selection. According to this position decisions are influenced in a variety of ways and are made on the basis of judging self and relating this judgment to expectations. Super and Bachrach (1957) followed a similar procedure by introducing the notion of developmental tasks as a way of

implementing the concepts that result from the comparison of self perception and perception of the external world both as it now appears and as it is expected to be in the future. Believing that an individual's life history was important in the formation of concepts, Holland (1966) introduced the idea of personality types. This not only showed how past experience plays a role in determining how one perceives and interprets the present and anticipates the future, but it also added an element of prediction to developmental description. While some more general theories evolved from these efforts, they have tended to be descriptive and cannot be readily integrated into the total life processes on which CDM rests.

More recently there has been a trend toward relating vocational development specifically to psychological decision making processes. Jepsen and Dilley (1974) attempted to bring these together by comparing the assumptions made and the concepts underlying them. They divided decision-making models into two categories: descriptive models, describing the natural phenomenon of decision making, and prescriptive models, describing rules for decision making. As examples of descriptive models they cited the work of Tiedeman and O'Hara (1963) in which problems are arranged hierarchically and processed via the cognitive method of differentiation and integration of various kinds of input. Hilton (1962) described vocational choice as complex information processing. Here problems lead to "plans" and information scanning. Career choice is thus seen as a matter of adjustment to perceived conditions. Vroom (1964) suggested a method of using algebraic expressions to determine how valence and expectancy produce forces leading to action and decision. The individual is seen as a "system" in which occupational information acts as "input" and choice is seen as the "output." Such models can, of course, be extended by regression analysis or path analysis to determine the effects of a multiplicity of influencers and the interactions among them. The trick is to choose the most powerful ones, and even then the analysis is post hoc and generalizable only to specific target groups. It also tends to be limited to description of the way things are rather than how they might be.

At the other end of the spectrum are the prescriptive models which attempt to specify rules for effective decision making. Katz (1966) stressed the role of values rather than alternatives. By doing so he believed he could predict the value of decisions and thus determine the merits of specific choices. In the Gelatt (1962) model, the decision making process as well as the outcome was evaluated. He emphasized input which is to be so handled that objective data can adequately influence subjective content. By doing this Gelatt combined a predictive system with a value system and decision criteria. Kaldor and Zytowski (1969) used economic theory to show how individuals determine the utility of a decision by seeking an occupation which will match personal resources to possible gain. This latter theory, like other economic theories, requires some considerable assumptions about the availability of information and the ability of individuals to handle it.

While both the descriptive and prescriptive models of decision making are useful adjuncts, they fall short of describing the CDM process because they tend to deal only with what occurs at a particular point in time, without due reference to preceding events and individuals' interpretations of them.

The brevity of this review in no way does justice to the excellent work of a great many scholars and practitioners. What has been attempted is to demonstrate that current theories and models have tried to spell out specific CDM factors. What they frequently fail to do is to take the totality of those factors into account. The economic and decision theories make large assumptions about availability of information and the ability of individuals to handle it. The sociological and non-psychological theories place great emphasis on environmental control of behavior. The psychological theories, on the other hand, lean toward constructs that are difficult to measure and control. The general theories are composites of various points of view which frequently fail to describe the actual process in any idiosyncratic way. Many descriptions of career choice are post hoc and have predictive value only for a given population at a given point in time in a given and restricted set of circumstances. They are largely descriptive of what will happen if no intervention takes place. Whether yet another theory will add anything to the body of knowledge already available is a matter for individual judgment.

H. Toward a Social Learning Theory of Career Decision Making

Because social learning theory has some of its roots in reinforcement theory and stimulus-response behaviorism, it may raise in the minds of many readers the spectre of external manipulation and control of human behavior. For this reason, a brief discussion of its current status is introduced here to show that as the authors conceive of it, this theory is not limited to mere conditioning or connectionism in the Pavlovian-Skinnerian sense. This study's application of social learning theory assumes that a human is a thinking, planful organism who is not always passively controlled by the environmental forces that surround her or him but can actively engage in interpreting those forces and arranging them for her or his own purposes.

The following provides an overview of social learning theory as it applies to the concepts of conditioning, reinforcement, and freedom of choice. The interested reader will do well to consult the work of Albert Bandura (1971, 1974) for a more complete discussion, since much of what follows has been adapted from his presidential address to the American Psychological Association in August, 1974.

On the concept of conditioning, the popular version of stimulus-response theory has frequently suffered from a belief that conditioning as a form of learning means the tedious pairing of stimuli, a scheduled pattern of reinforcements, and the individual's resultant loss of freedom and control. It is seen by many as mechanical and largely unconscious. More recent thinking and research based on the concept of reinforcement has, however, led to a much more comprehensive view. Conditioning is not just a matter of pairing simple stimuli under controlled conditions. It is rather a matter of pairing total and often complex experiences or constellations of experiences which have no necessary temporal relationship. These experiences may be random or planned; they may be effective or ineffective; they may be aversive or rewarding; and they may be subject to intervention and influence from both without and within the individual. It is with the problem of control that there is considerable concern. Social learning theorists share this concern, but they also realize that all humans are under some form of control at all times and that in the processing of information only personal awareness and awareness of training influencers make self determination possible. Furthermore, there is no evidence at this point that human beings are extensively

subject to control unless they have some desire to be controlled. While it is true that animals can be trained (conditioned) by pairing neutral stimuli with stimuli of known value in the presence of reinforcement, it should not be assumed that the procedure is as simple with humans. In the human case, conditioning is cognitively mediated so that events become correlated with each other and with anticipated outcomes, and responses to stimuli are based on both perceptions and expectations. Past, present, and future become collated in action or delay of action. The individual can learn to interpret events and to become responsible for her or his own action. In this context one approach to intervention might entail teaching people to interpret external and internal experiences and to manipulate these to meet their own needs while taking into account societal needs.

Current conceptions of social learning theory also require a modification of the concept of reinforcement. Most students of psychology are taught that reinforcement is effective only if given very soon after a desired response has been performed. This leads to the further assumption that reinforcement is largely external and under the control of others. In the authors' view, this is not the case. While the reward or motivational function of reinforcement is important, it also plays the much more important role of providing information for cognitive consumption. It makes possible the prediction of contingencies that are likely to result from future events and possible actions. It is this sort of prediction that allows for freedom to create situations and correspondingly satisfying contingencies. It also forms the basis for what psychologists refer to as approach and avoidance behavior. To the extent that complete information about the contours of future events is not available, predictions may be inaccurate and plans unrealistic. When beliefs about possible futures are strongly entrenched, an individual may suffer because s/he fails to adjust to changing conditions. On the other hand, attractiveness of immediate rewards may obscure the value of long-term goals and planning. As long as reinforcement is available for information and motivation, ways can be found to help people make sound decisions based on reasonable probabilities and to provide alternatives for themselves when such alternatives do not appear to exist.

Fortunately, only a limited amount of what individuals need to know must be derived from direct experience through trial and error. Much of what humans learn is achieved vicariously from the experiences of others who are like them and who therefore share both their experiences and are subject to similar restrictions and opportunities. Thus some people are prepared to accept inequitable rewards because they see that their peers do not get what they deserve. The same experience may be extremely frustrating for others. Another response may result in an individual's delaying gratification in the hope that rewards will come later. Other persons develop internal sources of reward. In certain situations, they are less subject to the control of external forces and have a greater number of available alternatives. Effective CDM may thus depend largely on opportunity and the skill that an individual has in matching her or his internal self-reinforcing patterns to those of the environment. The individual who relies completely on social or external rewards may become so compliant that s/he literally makes no choices at all and allows herself or himself to be programmed by the environment. The individual who relies largely on internal reward systems may find that s/he cannot operate effectively in a given environment at all, or, if s/he does give in to environmental pressures, a sense of self worth may be lost and complete

alienation may result.

This illustrates how the perceived constraints of society can become a part of an individual's conceptual system. Mere contiguity could never explain how such values are learned and used. Thus society, and its institutional systems, control behavior through information and ideas which are integrated into an individual's cognition under the aegis of reinforcement contingencies which may be externally controlled or internally produced. As a result, the inefficient process of shaping behavior by applying or renewing reinforcements following successive response approximations, is relatively weak as compared to the powerful procedures of instruction and modelling. Because the way individuals interpret events on the basis of the values they hold and because the contingencies which operate in them and their environments determine their values, it is important that people understand the forces that determine their choice patterns and the possibility of increasing their range of available alternatives. On the other hand, it is obvious that environmental and institutional forces create contingencies which are not conducive to the optimal development of all individuals. Social learning theory suggests that system changes may sometimes be more appropriate than trying to help the individual adjust to institutions. Without such changes many individuals have no choice but to arrange their own contingencies. These may not be supported by the environment and the resulting discontinuities may cause social distress of considerable magnitude.

Therefore, social learning theory holds that learning takes place through observation as well as through direct experience. Concepts and expectations are formed through the symbolic representation of such activities and this coded covert behavior becomes the guide for overt action. Creativity occurs as various concepts are cognitively manipulated to form new conceptual patterns. Experience--learning how to learn--plays an important role in continuing development. Construction of one's future thus becomes a realistic goal.

Finally, on the concept of human freedom, Bandura points out that in social learning theory it is defined as the availability of options and the right to exercise them. Personal freedom can be limited by behavioral deficits, fears and self-censure, societal inhibitions and discrimination. It can be increased by cultivating competencies, eliminating dysfunctional personal restraints, and by reducing environmental prohibitions and discriminatory attitudes and regulations through legal and group actions and education. It should be remembered, however, that though knowledge is a powerful weapon against external control, it is not enough. The ability to predict the consequences of action, to integrate information and provide self-reinforcement, and to influence the range of available alternatives are examples of additional factors that might facilitate self-control in any comprehensive decision-making process.

This brief sketch of some of the major features of social learning theory has attempted both to neutralize some of the negative connotations frequently associated with any theory that finds some of its underpinnings in stimulus-response models and to demonstrate at least some ways in which the theory can be helpful in thinking about CDM. In summary, a number of points can be made about the advantages the authors perceive this theoretical approach has over existing theories and models.

1. Even though the authors want the individual to have more rather than less control over her or his career choices and development, they believe that in the area of theory construction it is best to avoid questions of value as much as possible. The theory presented in Chapter II has largely been able to achieve this aim. Nevertheless, the point of view from which the authors started was that human behavior can be under the control of the individual as well as the environment and that the individual can exercise some control over the available alternatives and the consequences of her or his actions. To the extent that such control can provide mutual benefit to both the individual and society, the authors hold that it is desirable. Specific forms of intervention in response to specific problems and conditions are not advocated by the theory itself. As illustrated in Chapter IV, interventions can be derived from this theory. They are available for those who wish to use them. Guidance in determining which needs to respond to must be sought from other sources. Whenever this is done, however, cognizance must be taken of individual and societal needs and the values that govern their interaction.
2. Arising out of the value orientation noted above, social learning theory explains how sources of reinforcement both internal and external to the individual act as motivational and informational sources to produce integration of past experiences and anticipated events. This description not only elucidates the learning process itself but makes aspects of that process amenable to instruction. Again, the fact that individuals have some control over the contingencies they find reinforcing makes it possible for them to extend the range of alternatives to which they can respond.
3. Social learning theory forms the baseline for a comprehensive life-long process of decision making. It allows for the influence of economic and sociological factors as well as for psychological influencers such as experiences, aspirations, and skills. While it does not rely heavily on the use of intervening variables and hypothetical constructs, involved in cognitive processes, it does not inhibit the insertion of these at points in the framework which is outlined. Thus, for example, the person who wishes to study in more depth the way in which aspects of CDM are handled cognitively can easily do so.
4. Many extant theories, such as those of Super, say that vocational development consists in the implementation of the self concept as a sort of personal fulfillment. The source of this self concept is never described in any testable form; in fact, it is difficult to conclude whether pursuit of school and work alternatives leads to the development of self concept or vice versa. The theory presented here is based on the proposition that to say "life is work" is not adequate. In the authors' view the self concept is the product of experience and this experience can be traced through the analysis of input and output variables and cognitive mediating responses.

5. Social learning theory agrees with other theories regarding the control role of cognitive mediation in the CDM process. However, many models, significantly the trait-and-factor approaches, fail to operationalize these processes, relying on simple correlational demonstrations of interactions and ignoring the process itself as well as cause-effect interactions of independent and dependent variables. The model presented here describes these processes and interactions in operational terms and demonstrates how they fit into a comprehensive CDM model.
6. Since a social learning theory model gets closer to observable causes and effects, research and intervention are much easier. It involves a more direct approach to the problems of CDM. At the same time, it is a more comprehensive model which allows more influencers to be studied in an interactive way.

The approach presented in the next chapter is one which attempts to encompass a total process, not just some phase of it. It explains the development of career aspirations and achievements which are so important in the trait-factor approach; reinforces the notion that career selection is a developmental process at the same time (although contesting the validity of lock-step developmental stages and phases); clarifies the role of decision-making and the evolution of decision-making skills; allows for the influence of economic and sociological variables; and is compatible with critical aspects of the personality theories.

Chapter II

A SOCIAL LEARNING THEORY OF CDM

John D. Krumboltz

A. Problem

Why do people happen to enter the particular educational programs or occupations they do? How or why is it that they change from one educational program or occupation to another at various points throughout their lives? How can it be explained that they express different preferences for various programs or occupations at different times in their lives?

A number of attempts has been made to understand these phenomena. What follows is a social learning theory analysis of career decision making. This analysis provides a basis for a series of propositions that lead to some testable hypotheses and provide a framework for a synthesis of existing empirical evidence.

The theory presented here attempts to explain how educational and occupational preferences and skills are acquired and how selections of courses, occupations, and fields of work are made. It identifies the interactions of genetic factors, environmental conditions, learning experiences, cognitive and emotional responses, and performance skills that produce movement along one career path or another. Combinations of these factors interact in different ways to produce different decisions.

At each decision point the decider has one or more response or decision options. Internal (personal) and external (environmental) influencers (constraints or facilitators) shape the nature and number of those options and the way in which individuals respond to them. Sometimes so many options are available that the individual feels incapable of deciding. At other times options may be so limited or so disproportionate in value that the individual feels only one option is available. In fact, this person might feel she or he has no choice. But always there are options, even if one of them is not to make a decision. A decision--the selection of an option from among two or more alternatives--may increase or decrease options available for future decisions. Some consequences are irreversible. The decision made within an environment becomes part of the new environment, and may itself become one of the constraints or facilitators in a new setting. This is another example of the interdependence of any series of learning experiences and decisions.

The theory allows for modifications by future events. In no sense is it intended as a final statement. It should be congruent with presently known facts but it should also suggest further research that may lead to modifying part or all of the theory itself.

B. Factors that Influence the Nature of CDM

Four categories of influencers are posited:

1. Genetic Endowment and Special Abilities

A person is born with certain inherited qualities that may set limits on that individual's educational and occupational preferences, skills, and selections. Following are some illustrative, although not exhaustive, factors that may well make a difference.

- Race
- Sex
- Physical appearance and characteristics, including physical defects or handicaps that cannot be changed

The evidence is not clear as to the genetic and environmental components of various special abilities. It is not essential for purposes of this theory to know at this point exactly what portion of the variance is due to genetic or environmental influencers, but it should be recognized that the possibility exists that certain individuals are born with greater or lesser predispositions to profit from certain types of learning experiences. Aspects of the following abilities might be attributed to such predispositions, while other parts obviously result from interactions with environmental influencers.

- Intelligence
- Musical ability
- Artistic ability
- Muscular coordination

2. Environmental Conditions and Events

Educational and occupational decision making is influenced to a large extent by factors usually outside the control of any one individual. Some events may be planned; many others are unplanned. These environmental conditions and events may be due to human action (social, cultural, political, or economic) or to natural forces (location of natural resources or natural disasters). As a result of these factors, certain events or conditions occur which influence the career preferences, skills, and plans and activities of the individual.

- Number and nature of job opportunities. As a result of historical forces and governmental policies, certain occupational opportunities are available in one setting that are not available in another. Opportunities to be an abalone fisherman exist in California but not in Arizona. Opportunities to be a department store Santa Claus are available in certain Western countries but not in Pakistan.
- Number and nature of training opportunities. Educational opportunities are available in different cultures through different social institutions. In the United States training is available through public schools, proprietary schools, the armed forces, apprenticeship programs in unions and industry, and through correspondence courses. Accessibility of these training alternatives varies considerably from one location to another.

- Social policies and procedures for selecting trainees and workers. Policies and procedures can change as a result of new laws or judicial decisions. For example, the use of certain aptitude tests has been restricted as a result of recent court decisions. Requirements for entering certain jobs may be modified. The requirements may be functional or nonfunctional but still have an influence on the career selection process. For example, the requirement of a high school diploma may influence certain people to finish their high school education even though a high school education is not necessary for successful performance on the job.
- Rate of return for various occupations. The ratio of potential pecuniary and non-pecuniary rewards to the costs of preparing for an occupation varies dramatically from one occupation to another. The rewards, the risks, and the costs of preparing for any given occupation can be different in different cultures and in different groups within the same culture, and can be changed within any given culture as a result of institutional or governmental action. Trends in the rate of return for different occupations may be identified and affect future planning.
- Labor laws and union rules. Rules for joining labor unions can affect the number of new members, the number of job opportunities, and the benefits.
- Physical events such as earthquakes, droughts, floods, and hurricanes. Disasters such as these can destroy the economy of a certain location such that individuals employed there can no longer continue the same type of work.
- Availability of and demand for natural resources. The owner of land on which oil was discovered under circumstances where there was a large demand for oil might understandably change his occupational activities.
- Technological developments. The invention of new techniques and products produces job opportunities that might have been unavailable a few years previously. Industrialized societies therefore produce different patterns of job opportunities than less developed societies.
- Changes in social organization. Setting up the social security system in the United States not only provided a large number of jobs for employees in the federal civil service system but it affected the career plans of many individuals.
- Family training experiences and resources. An individual is born or adopted into a family which has learned a certain religion, has adopted certain values, and which communicates certain expectations to the new child.

Families differ in what they teach their youngsters and in the resources they have available to provide for them. Such differences produce conditions for the individual that may make a difference in that individual's educational and occupational preferences, skills, and selections.

- Educational system. The school organization, the administrative policies, the type and personality of teachers available to the individual can have a big influence on the skills learned and the degree to which the individual strives to achieve success in various endeavors.
- Neighborhood and community influences. Communities differ in the extent to which models of people working in different occupations are available, the extent to which peers have learned differential values, and the extent to which various cultural events are available and valued.

3. Learning Experiences

Educational and occupational decision making is also influenced by the individual's past learning experiences. The patterns of stimuli and reinforcement, their nature and scheduling are so exceedingly complex that no theory can adequately account for the infinite variations that influence the development of career preferences and skills and the making of career selections. Two categories of learning are used here in an overly simplified form to point out the types of experiences that have an impact on CDM.

- Instrumental Learning Experiences (ILEs). In these the individual acts on the environment in such a way as to produce certain consequences. An H-shaped figure will be used to represent an instrumental learning experience. Figure 1 on the next page presents a diagram to show the components in the ILE. Three general components are identified: antecedents, covert and overt behavioral responses, and consequences (including responses to these consequences which in turn become a part of subsequent learning experiences). The antecedents in the general model consist of factors such as those identified in the above three sections (e.g., the cultural setting, the social history of the particular group) and the stimulus characteristics of a particular task or problem that is presented to the individual. Behavioral responses consist of cognitive and emotional responses as well as overt actions. Consequences include both the direct effects produced by the action (self feedback, verbal feedback from other individuals, observable results of the action itself, immediate or delayed impact on other people) and the cognitive and feeling responses the individual makes when s/he experiences these consequences. Figure 1 also presents a specific example of antecedents, the overt component of the behavior, and feedback component of the consequences in the fictitious case of "Roger." Other exam-

Antecedents	Behaviors	Consequences	Antecedents	Behaviors	Consequences
Genetic Endowment		Verbal Feedback from Self and/or Others	Roger, age 17, white, male, poor muscular coordination, superior writing skills.		Teacher gives paper an "A" grade and writes "Well done."
Special Abilities and Skills		Direct Observable Results of Action			Roger thinks, "I could have done better if I had to."
Task or Problem	Covert and Overt Actions	Covert Reactions to Consequences (Cognitive and Emotional Responses)	Class in Government in which Roger has interacted with teacher and 29 others for 7 months. Teacher assigns paper on "A Famous Person in Government" due in 3 weeks	Roger (who happened to have visited Jefferson Memorial in Washington) writes paper on Thomas Jefferson and turns it in on time	Roger has a stimulating conversation with his father on how the U.S. would be different today if Jefferson had not lived
Planned and Unplanned Environmental (e.g., Social, Cultural, or Economic) Conditions or Events		Impact on Significant Others	Government class in U.S. high school where athletic success is dominant basis for male students		Roger's classmate, Jock, sees teacher's comment and calls Roger "teacher's pet"

GENERAL MODEL

SPECIFIC EXAMPLE: "ROGER"

Figure 1

Diagrams Representing Instrumental Learning Experiences (ILEs)

ples of instrumental learning experiences would include knitting a sweater, reading a book, hitting a baseball, saying hello to a stranger, cutting down a tree, making an angelfood cake, or kissing someone of the opposite sex. The skills necessary for successful career planning, development, and occupational or educational performance are learned through successive instrumental learning experiences.

- Associative Learning Experiences (ALEs). Learning experiences also occur when the individual's prevailing response pattern is a reaction to external stimuli. Observational learning in which the individual learns by observing real or fictitious models is included in this category of experiences.

Also incorporated here are experiences in which two events are paired in time or location such that the learner associates a previously neutral situation with some emotionally positive or negative reaction. Thus, for example, hearing or reading words that pair two things together can have an impact. For example, statements such as "All lawyers are crooked" or "Plumbers make a lot of money" or "Those who can, do; those who can't do, teach; those who can't teach, teach teachers." Such verbal stereotypes about occupations influence the relative attractiveness or unattractiveness of each occupation. These associations can be learned not only through words but through images on film, through reading in books, through observation of people employed in various occupations, and through direct experience. Individuals have a tendency to form generalizations about entire occupations from very few examples, and sometimes the first associations that are formed are the lasting ones.

The pairing of stimuli through the classical conditioning paradigm is also included here. For example, a boy who becomes nauseous at the sight of blood may generalize the association to conclude that becoming a physician is inappropriate for him.

On the next page, the general model for associative learning experiences is represented in Figure 2 as an O-shaped diagram. For simplicity, the cognitive and emotional responses the individual makes as a reaction to these associations are omitted from Figure 2. The top of the diagram describes the circumstances under which the individual is exposed to paired stimuli or a model; the neutral stimulus or the model is represented in the lower left quadrant with an arrow pointing to the associated positive or negative stimulus or the consequences received by the model. Figure 2 also presents a concrete example of stimulus pairing. It illustrates how "Roger" might learn that law students could be considered worthy sensitive, human beings.

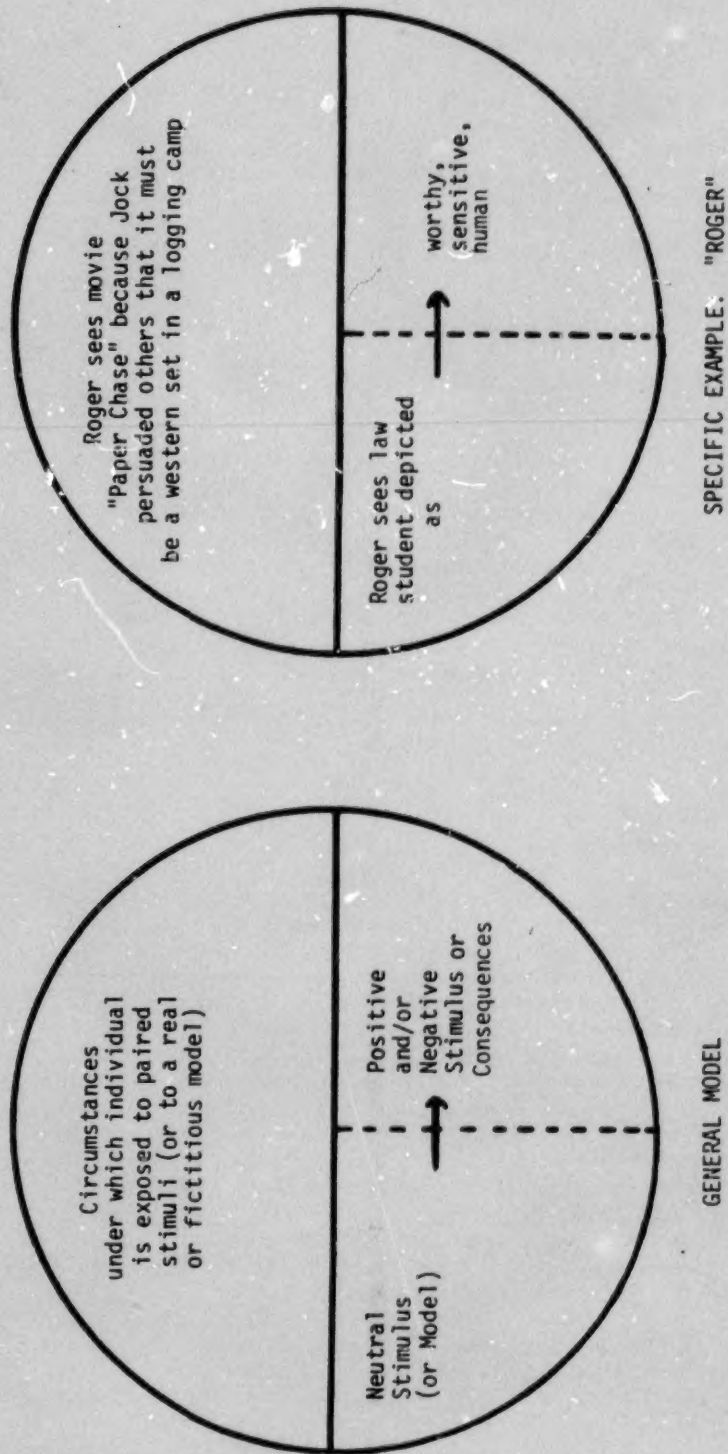


Figure 2
Diagrams Representing Associative Learning Experiences (ALEs)

4. Task Approach Skills

As a result of as yet unexplained interactions between genetic and environmental influences, an individual brings to each new task or problem a set of skills, performance standards and values, work habits, perceptual and cognitive processes (such as attending, selecting, symbolic rehearsing, coding, encoding, reflecting, and evaluating responses) mental sets, and emotional responses. These task approach skills affect the outcomes of each task or problem. As a result of differential outcomes, the task approach skills become modified. For example, in high school Roger may cram for final examinations and get "A" grades, but in college his "cramming" habit may produce poor grades. The differential feedback may convince him to change his habits. Thus, task approach skills are both factors which influence outcomes and outcomes themselves.

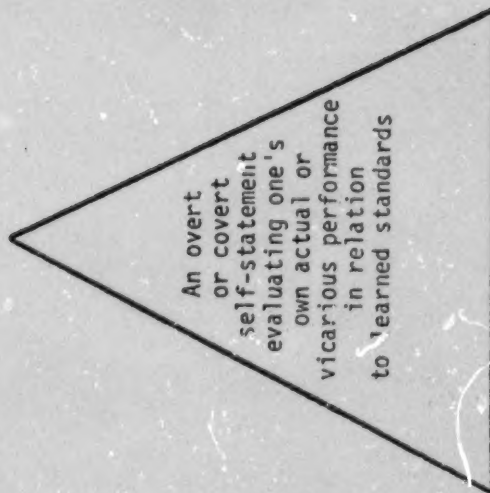
C. Outcomes of Interactions Among Influencers

Each individual is exposed to innumerable learning experiences throughout the days, months, and years of her or his life. These experiences occur in many sequences. Their combinations and permutations are virtually infinite. Each instrumental learning experience is followed by various rewards and/or punishments at various intervals of time following the behavior and these varying schedules of reward, in combination with other learning experiences with their varying schedules of reward, produce an array of unique experiences which contributes to the diversity and individuality of the human species. Three kinds of consequences are pertinent to this analysis.

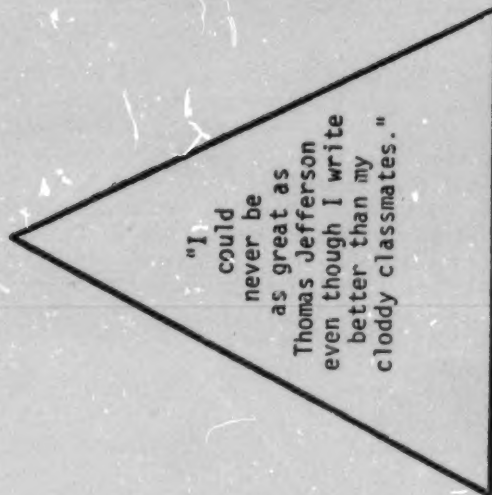
1. Self-Observation Generalizations (SOGs)

As a result of learning experiences, an individual can observe her/his own performance in relation to the performance of others or her/his own past performance and can make generalizations about it. Because the human being is capable of speech, s/he is able to utter statements which report these observations and conclusions. Comparison with others is usually part of the process, but idealized standards can be learned against which one's own behavior is compared. Figure 3 on the next page presents a diagram representing such a self-observation generalization. An SOG is defined as an overt or a covert self-statement evaluating one's own actual or vicarious performance in relation to learned standards. Figure 3 also presents a specific example of such an SOG in the case of "Roger." Not all SOGs are necessarily this explicit. A person may have a vague feeling of either confidence or discomfort, for example, when asked to give an impromptu speech. The feeling, as clearly articulated, might be, "I know I can give a succinct summary of my experience which will be well-received by other people because I have done this many times before." Or, if one's past experience had been different, the explicit statement might be, "Everyone will think I'm a fool if I stand up and try to talk in front of them, just like the last time someone made me do this."

Self-observations and conclusions are not necessarily accurate. A child might do an excellent job by objective standards but be told by her or his parents that it was poor. Without any other way to evaluate



GENERAL MODEL



SPECIFIC EXAMPLE: "ROGER"

Figure 3

Diagrams Representing a Self-Observation Generalization (SOG)

her or his own performance, s/he will learn to make negative evaluations about that particular behavior. When such negative evaluations are uttered, their expression may be reinforced by well-meaning friends who deny the negative statement and offer a more positive evaluation. Expressing negative self-observations then become a means of eliciting compliments from friends.

Self-observations and conclusions may be a function of the setting or the persons with whom one is associating. A boy may describe his bowling as superior in the presence of his girl-friend but inferior when he is with his buddies at the bowling alley. Such discrepancies can be explained as differential learning, a process involving discriminative stimuli and differential reinforcement. Positive self-observations and conclusions may be reinforced by some and punished by others. An individual accumulates both observations about her/his own performance and the generalizations to various situations but may not necessarily make explicit formulations of these observations or reactions until some suitable occasion for verbalizing them occurs.

Psychologists have devised various procedures for collecting individuals' self-observations and conclusions. Interest inventories are one such procedure. In some approaches to interest assessment, individuals are asked the degree to which they like, are indifferent to, or dislike various activities such as building a birdhouse or writing a letter. An individual may never have formulated an opinion on these questions before but, under the stimulus of the questionnaire, makes decisions about his degree of liking for each item. These "interests" are merely SOGs generalized from prior learning experiences.

Another such device is an adjective checklist in which the individual circles adjectives which s/he feels are descriptive of herself or himself, e.g., trustworthy, humorous, attractive, shy. These self-descriptive adjectives are the result of the individual's observing herself or himself through one or more learning experiences and arriving at specific self-conclusions.

People tend to remember their reactions to learning experiences but to forget the actual learning experiences themselves except when such experiences are particularly dramatic or traumatic. So some individuals can reliably report on whether they enjoy or do not enjoy reading science fiction but cannot give the names of specific science fiction books that they have read. The success of interest inventories in predicting future occupational selection is probably due to the fact that conclusions from various learning experiences are memorable and that people tend to continue doing those activities which produce pleasurable reactions.

Sometimes psychologists speak of interests as if they cause occupational selection. However, in the theory presented here interests are seen as consequences of learning experiences. It is the learning experiences themselves that have an impact on an individual's future development of educational and occupational skills and selection of a course of study, an occupation, or a field of work.

The one most important self-observation generalization for the pur-

poses of this CDM study consists of preferences: preferring to work at one task, to avoid another; preferring to play one sport but to eschew another. These preferences become an important outcome of learning experiences--the building blocks of career decisions.

2. Task Approach Skills (TASs)

Human beings are capable of relating their observations of themselves and of their environment in such a way as to make possible projections into the future as well as inferences about the past. Task approach skills are defined as cognitive and performance abilities and emotional predispositions for coping with the environment, interpreting it in relation to self-observation generalizations, and making covert or overt predictions about future events. They include work habits, mental sets, perceptual and thought processes, performance standards and values, problem orientating, and emotional responses. Figure 4 on the next page presents the general model and a specific example in the case of "Roger."

More specifically related to the purposes of the CDM study documented here, TASs include what may be termed CDM skills. Included are skills in value clarifying, goal setting, predicting future events, alternative generating, information seeking, estimating, re-interpreting past events, eliminating and selecting alternatives, planning, and generalizing. Evidence about the extent to which people can apply these skills can be inferred from their behavior in making decisions and from their self-reports. Here are some self-reports which illustrate TASs: "The last time I faced a problem like this I talked it over with my friends before deciding and I felt that it helped me reach a better decision. Maybe I'd better do that now." Or, "According to this pamphlet the demand for computer programmers is going to be much less ten years from now than it is now. But I wonder if the person who wrote this pamphlet really knows. I certainly do enjoy working with computers. Maybe by the time I'm old enough to take a full-time job the specific requirements will be quite different than they are now. I wonder if it does any good to plan ahead."

The nature of any TAS for an individual depends upon the sequence of her/his prior learning experiences, including any genetic factors that influenced those experiences. Individuals can acquire and perform sequentially related skills that both build on competencies already in their repertoires and enable them to complete tasks needed for making future career decisions.

3. Actions.

Some behavior is the ultimate outcome of the processes described above. Each behavior generates consequences which affect the relative frequency of similar behaviors in the future.

This study of a social learning approach to CDM is specifically concerned here with entry behaviors, those actions which represent an overt step in a career progression. Examples include applying for a specific job, applying to a specific school or training program, accepting a job offer or training opportunity, accepting a promotion, and

Cognitive and performance abilities and emotional predispositions for coping with the environment, interpreting it in relation to self-observation generalizations, and making covert and overt predictions about future events.

"I'm good at writing but lousy in sports. Law seems to attract either the most moral or the most unscrupulous types of people. I wonder if I could cut the mustard in law school. How could I find out?"

GENERAL MODEL

SPECIFIC EXAMPLE: "ROGER"

Figure 4

Diagrams Representing Task Approach Skills (TASs)

changing a college major.

D. The Process of Career Planning and Development

Consider an individual human being. She is born into the world with certain heredity. Her first view of the world is an antiseptic hospital with trained doctors and nurses in attendance. Immediately events begin impinging on her. She is slapped on the bottom. She feels cold. She cries. She finds a breast or a bottle. She cannot verbalize it yet but her subsequent behavior reveals that she might have been formulating an SOG which states, "Aha, crying produces warmth and milk for me." From her very first moment on earth the pattern of learning experiences has begun.

A general model outlining factors affecting educational and occupational decision making is diagrammed in Figure 5. On the left side are the genetic factors represented in the newly-born individual. Time moves from left to right. The underlying environmental, economic, social, and cultural events and conditions impinge upon the individual's learning experiences as the arrows indicate. The individual's learning experiences are represented by the O's and H's defined in Figures 1 and 2, while triangles and parallelograms which have been defined in Figures 3 and 4 represent additional products and thought processes. The triple arrows after certain events represent the fact that the event which subsequently followed did not necessarily have to follow at that point. Each individual can make choices. Other alternatives were equally possible, though not necessarily under the control of the individual involved. The ellipses (...) indicate that large amounts of time and therefore large numbers of learning experiences as well as environmental events have been omitted in order to save space in this diagram. The general model shows that as a result of the interaction of genetic factors, environmental factors, and a complex sequence of learning experiences, she arrives at a certain point in time at her current activity. In no sense is that current activity the final career activity. As time continues, further events and learning experiences occur, and educational and occupational activities may change.

As discussed in the preceding sections, learning experiences produce not only preferences (emotional reactions of liking or disliking) for various activities but cognitive and performance skills as well. This individual can observe herself engaging in a skilled performance and can obtain reactions from other people about the quality of that performance.

The consequences of each learning experience affect the probability that she will have a similar learning experience in the future. A successful performance or positive feedback from other people increases the probability that certain types of activities will be repeated and therefore that certain types of skills will be developed to a greater extent. If she observes herself writing well and is praised by her teacher and her parents, she probably will continue to write and improve her performance. If she receives more negative feedback, she probably will write as little as possible.

It is the sequential cumulative effects of numerous learning experiences affected by various environmental circumstances and the individual's cognitive and emotional reactions to these learning experiences and circumstances that cause a person to make decisions to enroll in a certain educational program or become employed in a particular occupation. Actual enrollment as a student or

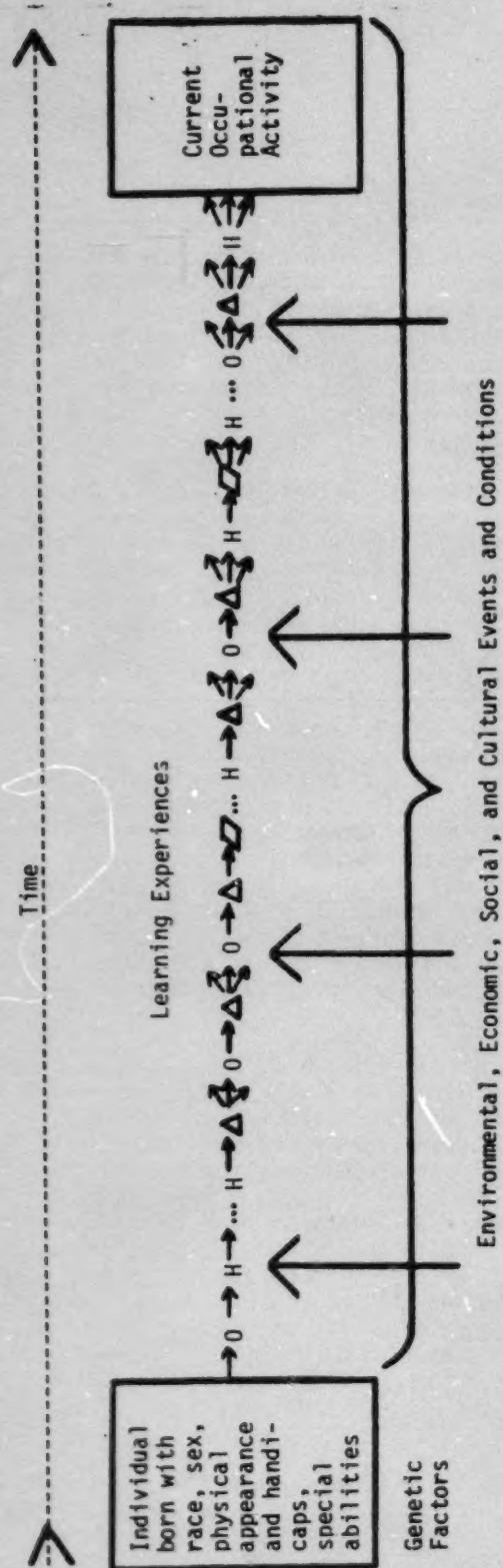


Fig. 5
General Model of Factors Affecting Occupational Selection

employment is not a simple function of preference or choice but is influenced by complex environmental (e.g., economic) factors, many of which are beyond the control of any single individual. A change in learning experiences can produce a change in her stated educational or occupational preferences. Changes in the environment can affect the type of learning experiences she receives. Occupational preferences are highly unstable during adolescence, probably because of the variety of learning experiences to which young people are exposed.

An abbreviated example of the general model applied to the case of "Barbara" is presented in Figure 6. As illustrated there, Barbara was born in the year 1944, influenced by the war, a new public library being built near her home, a charismatic Sunday School teacher, a boyfriend killed in Vietnam, and various social factors affecting women's expectations to have careers. Also diagrammed and illustrated are a very few of the innumerable learning experiences which have some effect on her educational and occupational selections.

Figure 7 presents another example of the general model applied to the case of Barbara. This one depicts the development of an alternate occupational selection. Genetic factors, early environmental factors, and the early learning experiences and an SOG are left intact from the first example. Then the diagram shows by three arrows that alternate instrumental learning experiences may affect ultimate choice: Figure 7 departs from Figure 6 and shows how different environmental factors and different learning experiences and SOGs may affect the course of Barbara's career development. This diagram also shows that environmental conditions which impinge on Barbara's learning experiences may sometimes be changed by action of the individual, whereas others are so pervasive as to be impervious to an individual's efforts. In the latter case the individual can regress to an early stage or can choose a constructive compromise, as is illustrated in this example.

Figure 8 presents another alternate to Barbara's environmental conditions, learning experiences, and SOCs. In this example, Barbara's early experiences are once again left intact, for purposes of illustrating that the event that followed the triple arrows in the diagram did not necessarily have to follow at that point. These three figures present only three of many alternatives possible. Once again, the environmental conditions impinging on Barbara's options are illustrated. In the first instance she succumbs to the constraints imposed on her occupational selection by rising costs of tuition for graduate school and high cost of loans. She perceives the constraint as beyond the control of an individual and changes her occupational selection from teacher to secretary. In the second instance she decides to influence the environmental constraints and forms an agency to help remove those constraints.

It should be noted that occupational selections presented in these examples constitute a lifelong process, not one-time choices. Although Barbara is employed as a waitress in 1974 in Figure 6, as a general practitioner in a rural area in Figure 7, and as vice president of an employment agency in Figure 8, it should be recognized that further environmental events and additional learning experiences will occur which will undoubtedly alter Barbara's future educational and occupational activities.

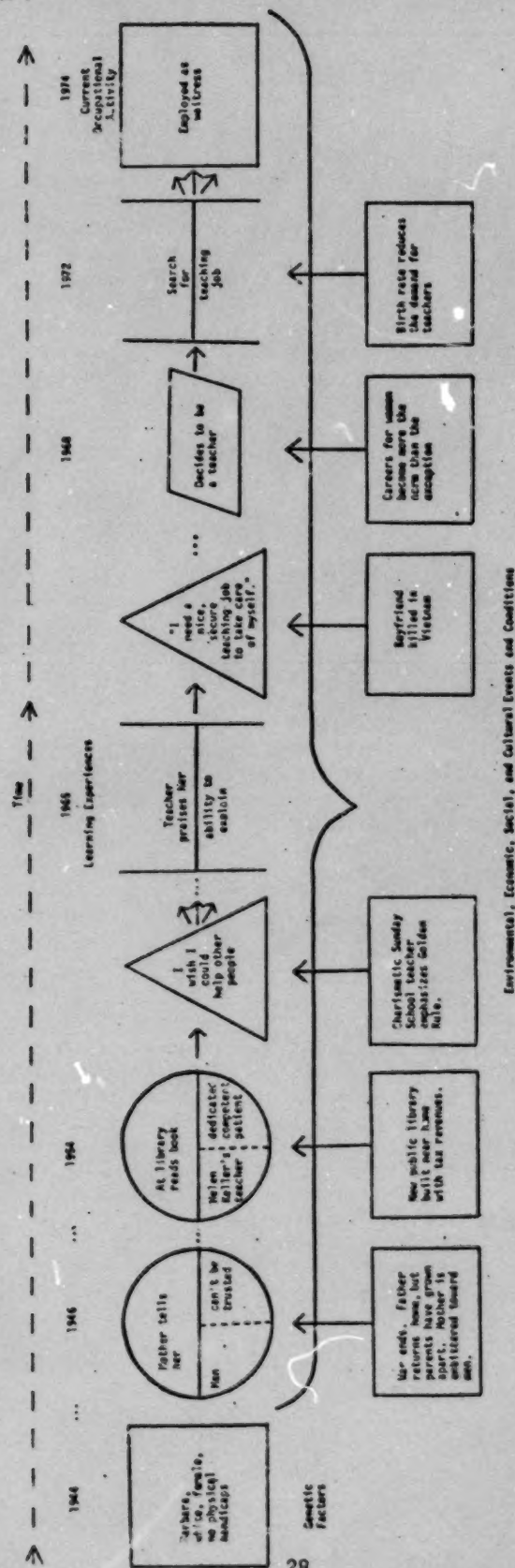
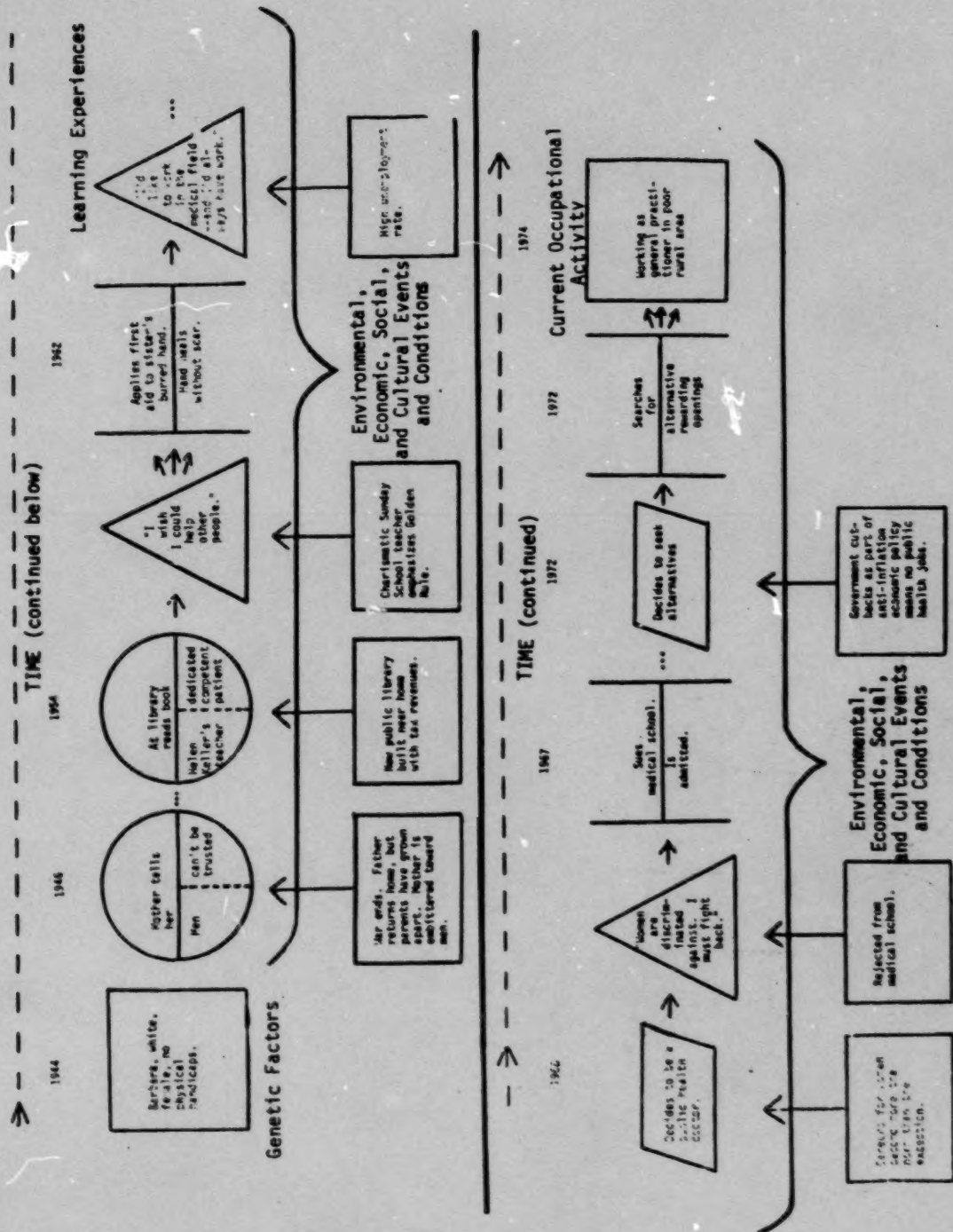


Fig. 6
Illustrative Excerpt of Factors Affecting "Barbara's" Occupation Selection



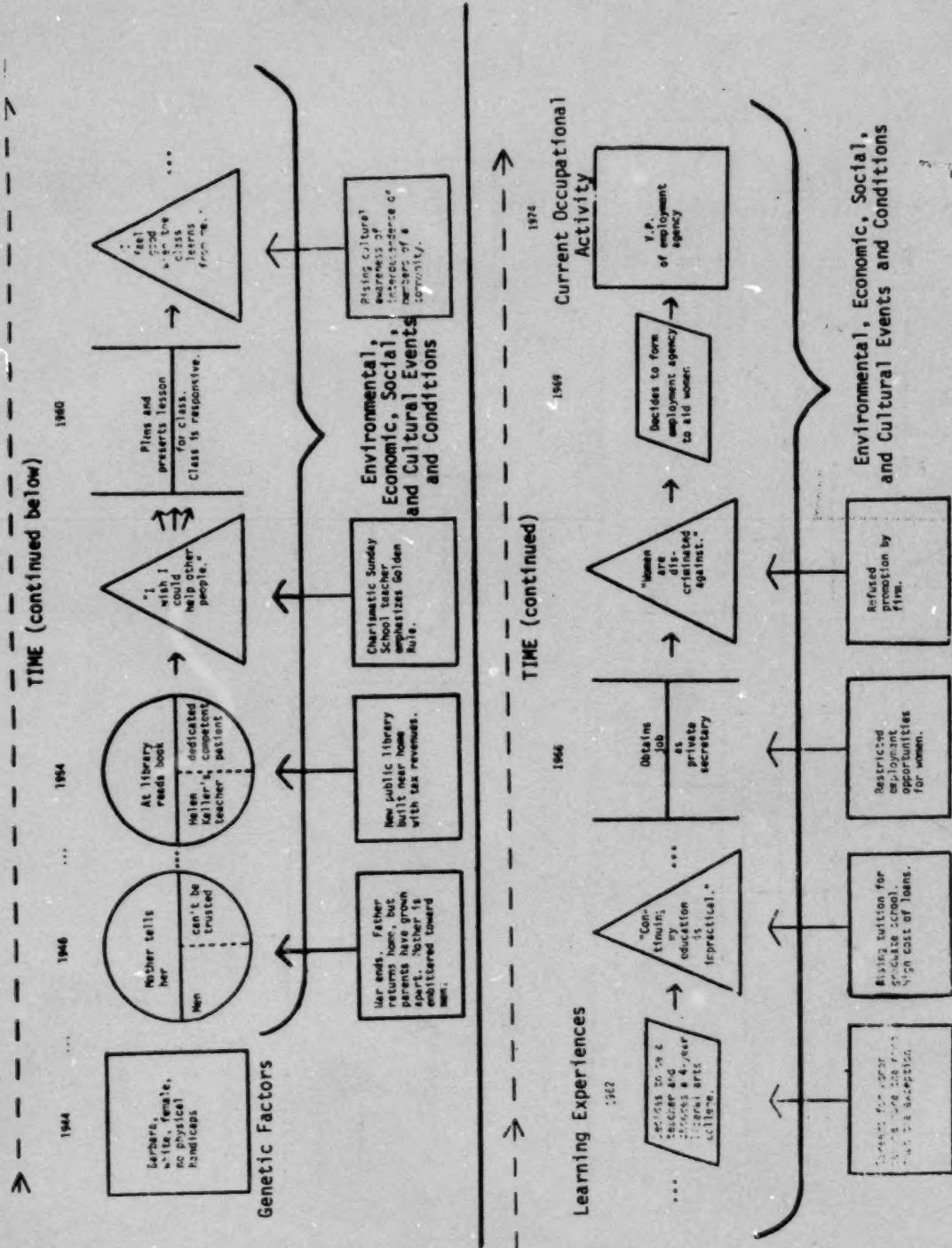


Figure 8
Illustrative Excerpt of Second Set of Alternative Factors Affecting
Barbara's Occupation Selection

E. Theoretical Propositions and Illustrative Hypotheses

The preceding analysis suggests a number of testable propositions, several of which follow, and a large number of possible testable hypotheses, only a few of which can be mentioned for illustrative purposes here.

1. Factors Influencing Preferences

As used here, an educational or occupational preference is an evaluative self-observation generalization based on those learning experiences pertinent to any career task. The propositions that follow attempt to explain how these particular self-observation generalizations are acquired.

a. Positive influences

Proposition IA1. An individual is more likely to express a preference for a course of study, an occupation, or the tasks and consequences of a field of work if that individual has been positively reinforced for engaging in activities s/he has learned are associated with the successful performance of that course, occupation, or field of work.

Illustrative Hypothesis: Boys who are reinforced for their basketball performance are more likely to indicate an interest in a basketball career than are those who are not so reinforced.

Why are some boys reinforced for basketball playing and others are not? A boy whose heredity and nutritional environment enable him to grow six feet ten inches tall is more likely to be reinforced by his basketball coach than a boy who grows to be only five feet two inches. Genetic and environmental factors play a major role in which learning experiences get reinforced.

Proposition IA2. An individual is more likely to express a preference for a course of study, an occupation, or the tasks and consequences of a field of work if that individual has observed a valued model being reinforced for engaging in activities s/he has learned are associated with the successful performance of that course, occupation, or field of work.

Illustrative Hypothesis: Tenth grade girls assigned the Biography of Florence Nightingale in English class will subsequently express greater interest in nursing than will those assigned Moby Dick.

Valued models can be vicarious as well as real. Models presented through literature, television, and motion pictures may well have as much influence as parents, relatives, and friends for at least some youngsters. The books that young people happen to read are a function of a number of environmental and cultural influences, many of which cannot be pre-

dicted. The models that young people identify with are those with which they happen to come in contact. Different cultural environments make available quite varied types of models.

Proposition IA3. An individual is more likely to express a preference for a course of study, an occupation, or the tasks and consequences of a field of work if that individual has been consistently positively reinforced by a valued person who models and/or advocates engaging in that course, occupation, or field of work.

Illustrative Hypothesis: Young people whose older friends and/or relatives report satisfaction with the benefits of a military career are more likely to express interest in joining one of the military services than are those whose relatives have not expressed such satisfaction.

Genetic and environmental influences are critical in influencing which people may qualify for and benefit from any given career. Certain physical standards are used by the military services in selecting members. People who are too short or too tall, or who were born with certain physical handicaps would not be eligible. Family influences play a big part in whether a given youngster comes in contact with people who model and/or advocate engaging in a particular occupation. Some people simply never come in contact with a person who, for instance, has chosen a military career and has been satisfied with it. Others have. The accident of birth therefore determines to a large extent the nature and type of models with whom an individual comes in contact.

Proposition IA4. An individual is more likely to express a preference for a course of study, an occupation; or the tasks and consequences in a field of work if that individual has been exposed to positive words and images associated with that course, occupation, field of work, or the activities related to it.

Illustrative Hypothesis: Students presented with a booklet describing and illustrating in glamorous terms a relatively unknown occupation will express more preference for that occupation than will students presented with objective facts about it.

The culture in which a young person grows up influences the type of words and images associated with various occupations. Some cultures will glamorize one occupation; others, another. Furthermore, what constitutes "glamour" depends upon the values that a particular culture manifests.

b. Negative Influences

Proposition IB1. An individual is less likely to express a preference for and more likely to express a rejection of a given course of study, an occupation, or the tasks and consequences of a field of work if that individual has been punished and/or has not been reinforced for engaging in activities s/he has learned are associated with successful performance of that course, occupation, or field of work.

Illustrative Hypothesis: Children who have received low grades in mathematics are more likely than are those who received high grades to express rejection of any career in which mathematics is said to be an important skill.

Some students happen to be exposed to skillful mathematics teachers; others are less fortunate. Those who are well taught learn mathematics step by step, master it well, and learn to enjoy it. Others find the tasks coming to them in such a sequence or at such a rate that they cannot succeed. The differential reinforcement and punishment provided by the schools undoubtedly leads many people to reject occupations which entail tasks they have come to hate.

Proposition IB2. An individual is less likely to express a preference for and more likely to express a rejection of a given course of study, an occupation, or the tasks and consequences of a field of work if that individual has observed a model receive punishment and/or little or no reinforcement for engaging in activities s/he has learned are associated with the successful performance of that course, occupation, or field of work.

Illustrative Hypothesis: College students whose closest friends were trained to be teachers but could not find jobs upon graduation will be more likely to reject teaching as a career than will those whose closest friends were trained as teachers and did find teaching jobs.

Economic factors play a major role in influencing the number of models which can be reinforced for particular kinds of training activities. The change from a teacher shortage to a teacher surplus has certainly influenced the number of people expressing a preference for teaching as a career. Observing what happens to influential models who fail to be reinforced for their choices can probably lead to lowered preference for those same choices.

Proposition IB3. An individual is less likely to express a preference for and more likely to express a rejection of a given course of study, occupation, or the tasks and consequences of a field of work if that individual has been consistently positively reinforced by a valued person who expresses negative opinions about the activities or persons who engage in that course, occupation, or field of work.

Illustrative Hypothesis: Children of parents who ridicule or degrade occupations requiring manual skill will express more rejection of those occupations than will children whose parents make no value judgments about those occupations.

Comments directed to or even accidentally overheard by children may influence their expressed preferences for certain jobs. People will tend to adopt the opinions of those who positively reinforce them. It is also possible that people will tend to reject the opinions of those who punish them. A number of other hypotheses could be generated on the interactions of reinforcement and/or punishment, the opinions of the reinforcing agent or the punishing agent, and the resulting opinions of the recipient. The persons with whom one happens to come in contact can therefore have a great influence upon the expressed preferences for various occupations.

Proposition IB4. An individual is less likely to express a preference for and more likely to express a rejection of a given course of study, an occupation, or the tasks and consequences of a field of work if that individual has been exposed to negative words and images associated with that course, occupation, field of work, or activities related to it.

Illustrative Hypothesis: Children seeing a motion picture depicting police officers as corrupt will be more likely to reject law enforcement as a career than will those seeing a factual documentary on law enforcement.

The motion picture and television media probably play an influential role in generating preferences for or against various occupations. It could be speculated that the current popularity of medical and legal training owes a good deal to the influence of Marcus Welby and Perry Mason.

2. Factors Influencing CDM Skills

CDM skills are a subset of task approach skills pertinent to occupational and educational decision making. Propositions in this section attempt to explain how these particular skills are acquired.

a. Positive Influences

Proposition IIA1. An individual is more likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has been positively reinforced for those responses.

Illustrative Hypothesis: High school students who are given a structured course in decision-making skills and whose efforts in that course are consistently rewarded and never punished will be more likely to apply those decision-making skills in future decision problems than will those high school students not receiving such a course.

Educational institutions may well be able to influence the degree to which people learn how to take control of their own career decisions. CDM is not exclusively the result of events happening to an individual but can also be shaped by an individual's own actions. But people need to know what kind of actions are likely to have some positive results for them. Systematic instruction can be designed to increase the probability that people can formulate and select intelligently from options that are presented to them or that they may have designed for themselves.

Proposition IIA2. An individual is more likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has observed real or vicarious models engaged in effective career decision-making strategies.

Illustrative Hypothesis: Students who observe a CDM film in which the models are depicted as being positively reinforced for engaging in the process will be more likely to engage in a similar process than will students not exposed to the same film.

Films, books, television programs, as well as the opportunity to observe real people wisely engaging in decision-making activities can probably have a great deal of influence on the extent to which young people will learn decision-making skills themselves. Experiments can be designed to determine the exact nature of such experiences that will make them most effective for youngsters of various backgrounds contemplating decisions of various types.

Proposition IIA3. An individual is more likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has access to people and other resources with the necessary information.

Illustrative Hypothesis: Students in schools that set up procedures for making career information easily accessible in meaningful ways will develop CDM skills to a greater extent than will students in schools not providing such opportunities.

Educational environments which provide needed CDM resources will probably produce superior decision-making skills. However, the resources need to be tailored to the entering skill level of the students and need to be made interesting and pertinent to the target population. Resources include not merely descriptive materials about occupations, but simulated job experiences, opportunities to talk with people engaged in various occupations, and even opportunities to work for short periods of time in close association with people in various occupations.

b. Negative influences

Proposition IIB1. An individual is less likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has been punished or not reinforced for such behaviors.

Illustrative Hypothesis: Children whose attempts to make their own plans and decisions are consistently punished or overruled will develop less effective decision-making skills than will children whose planning efforts are reinforced or merely ignored.

Planning can be made an aversive activity. When plans are constantly upset by unforeseen factors, a youngster may develop the view that such planning is useless since events are out of her or his control.

Proposition IIB2. An individual is less likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has observed real or vicarious models receive punishment and/or little or no reinforcement for attempting to engage in CDM activities.

Illustrative Hypothesis: Young people who associate with peers who reject the usefulness of career planning and believe that fate will make their plans are less likely to develop decision-making skills than are those students who associate with peers who are committed to the notion of career planning and the possibility of self-control.

Peer influences play a big part in young people's lives, but peers are only one of the sets of models. Parents whose own careers have been frustrated may explicitly or implicitly model the view that fate controls one's life and that therefore the best course of action is to take the most expedient step at the moment rather than plan for the future.

Proposition IIB3. An individual is less likely to learn the cognitive and performance skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has little or no access to people and other resources with the necessary information.

Illustrative Hypothesis: Persons denied access to simulated vocational problem-solving materials will engage in less career exploration than will individuals who are given successively greater exposure to such simulated vocational problem-solving materials.

Critical experiences may be designed to encourage active career exploration. The fact that many young people have no idea what it is they want to do is probably due to the fact that they have had such limited experience with actual occupational activities. The more activities that can be provided for them related to occupations, the more they can learn what it is they like and dislike, what they can and cannot do, what they want to learn and do not want to learn, and what they want to find out about next.

3. Factors Influencing Entry Behaviors into Educational or Occupational Alternatives

Given the acquisition of preferences, emotional responses, and cognitive and performance skills through various learning experiences, the propositions in this section attempt to explain some factors that account for the actual entry behaviors into occupations, training programs, or educational courses of study.

a. Positive Influences

Proposition IIIA1. An individual is more likely to take actions leading to enrollment in a given course or employment in a given occupation or field of work if that individual has recently expressed a preference for that course, occupation, or field of work.

Illustrative Hypothesis: People entering plumbing apprenticeships will express a higher degree of interest in plumbing than will people of the same age and sex who are not entering plumbing apprenticeships.

Perhaps it seems obvious that expressed preference and actual choice will correspond. However, it is necessary to make explicit that the preferences generated through the procedures described under the first set of propositions above will be reflected in the actual actions taken by those individuals. However, preferences change over time. It is only the most recently expressed preference that is of concern at the time action is taken. This means that recent events can have an influence upon both preferences and actions. Educational and occupational preferences are not established at an early age to remain stable ever after. The process is in a constant state of flux as a result of constantly changing circumstances.

Proposition IIIA2. An individual is more likely to take actions leading to enrollment in a given course or employment in a given occupation or field of work if that individual has been exposed to learning and employment opportunities in that course, occupation, or field of work.

Illustrative Hypothesis: Communities that make available training opportunities as dental hygienists will find more people in that community seeking to become dental hygienists than will occur in equivalent communities where such training is not made available.

Again it may seem obvious that the number of trainees will vary as a function of the number of training opportunities. But it is important to note that the economic environment plays a big role in what occupations people actually enter. Individuals make choices among concrete alternatives. Actual entry into occupations or training is a function of available opportunities and the chance to find out about those opportunities.

Proposition IIIA3. An individual is more likely to take actions leading to enrollment in a given course or employment in a given occupation or field of work if that individual's learned skills match the educational and/or occupational requirements.

Illustrative Hypothesis: Individuals who become professional football players will have superior muscular coordination compared to that of individuals who become accountants.

Traditional aptitude tests have not provided clear distinctions between people entering various occupations. However, for certain occupations there are learned skills (cognitive and performance) which are necessary, skills which are not measured by traditional aptitude tests. Individuals who have learned to pound a nail without bending it are more likely to become carpenters than are individuals who constantly bend the nail after it is half way into the wood. Opportunities vary for people to learn these skills depending upon the training opportunities they have had, the models they have been exposed to, the cultures that they have grown up in, and the genetic factors that enable them to learn the skills.

b. Negative Influences

Proposition IIIB1. An individual is less likely to take actions leading to enrollment in a given course or employment in a given occupation or field of work if that individual finds that the cost of preparation for that occupation is excessive in relation to future economic, social, and personal rewards.

Illustrative Hypothesis: Providing scholarship money for medical school training will increase the probability that poverty level students who are otherwise qualified will enter medical training.

The cost-benefit ratio of preparation to reward in occupations plays an important part in which individuals aspire to which occupations. By reducing the cost of preparation or by increasing the rewards associated with successful performance, a society can alter the nature and number of individuals entering each occupation.

Proposition IIIB2. An individual is less likely to take actions leading to enrollment in a given course or employment in a given occupation or field of work if that individual is denied access to the minimum resources necessary for entering that occupation or field of work.

Illustrative Hypothesis: Among students aspiring to become airline pilots, those who are admitted to Air Force or Navy pilot training programs will be more likely to enter the occupation of airline pilot than will those who are denied access to such training.

A society can make training for certain occupations so expensive that relatively few people can afford it unless they somehow are given special access paid for by the society at large. Pilot training is just one such example.

E. Summary

This chapter has presented a social learning theory of CDM which illustrates factors that influence the nature of career decisions: genetic endowment and special abilities; environmental influencers; learning experiences; and task approach skills. General categories of outcomes of interactions among these influencers are self-observation generalizations, applications of task approach skills, and subsequent actions. Specific outcomes relevant to CDM are preferences, CDM skills, and entry behaviors. Chapter III presents an analysis of the literature as it relates to this theory.

Chapter III

ANALYSIS AND SYNTHESIS OF CDM LITERATURE AS RELATED TO THIS THEORY

Anita M. Mitchell

A. Purpose

The previous chapter presented a social learning theory of CDM, with theoretical propositions and illustrative hypotheses. The propositions were grouped into three areas related to educational and occupational decision making: establishment of preferences, acquisition of skills, and entry into a training or occupational option. Some genetic factors, environmental conditions and events, and learning experiences which influence these three areas were specified.

This chapter summarizes literature that was analyzed and synthesized to shape the theory presented in Chapter II. First, it reviews references which, although not adding directly to the authors' understanding of CDM, furnished important background data for the theory. Then, it lists empirical studies, theories and general statements, and literature reviews that relate to each proposition.

This chapter concludes with a presentation of additional research studies, theories, and reviews that this project's staff initially believed warranted attention but were later analyzed as being not too relevant to the theory for diverse reasons. These references are grouped into the following categories: (1) they entail constructs that are operationalized fairly well but are not relevant to the social learning theory of CDM; (2) their constructs are operationalized but their hypotheses are either not confirmed or there are insufficient data on them; (3) they present models, theories, and general statements not specifically related to this project's theory; (4) they are summaries, reviews and critiques not related to specific propositions; or (5) they are correlational studies of variables (e.g., achievement, job stability) that this study's staff thought have no direct relationship to the making of career decisions. Each literature source reviewed in this chapter is annotated in Appendix C.

B. Generally Supportive Literature

A number of important studies furnish background information that generally support the social learning theory, but do not furnish data specifically supporting the cause-effect relationships stated in its propositions. These studies give information on dependent variables that represent the outcomes of decision making but do not treat the independent variables that influence these outcomes. They include the following subcategories.

1. Studies that document the instability of goals (The social learning theory stresses interactions that explain this instability).

Astin & Bisconti, 1973 - Career plans of the classes of 1965 and 1970 shifted as follows: (a) there was an increase in proportion of men studying for and entering business as a career; (b) there was a shift toward business executive; (c) women shifted out of masculine-associated careers; (d) women shifted toward teaching and

non-medical health professions; (e) men tended to select work settings congruent with their career choices; (f) business was the most likely career choice of social science majors; (g) anticipated primary first employers for men were (i) private companies and (ii) government, and for women were (i) educational settings, (ii) private companies, and (iii) government.

Baird, 1971 - More college students raised than lowered their degree of aspirations in junior college.

Carmody, Fenske, & Scott, 1972 - Large percentages of students changed goals while in college.

There was a regression effect of changes from the extreme (AA & Ph.D.) to B.A. & M.A.

Flanagan, 1971 - Project TALENT data indicate that there was little stability of choice during five years after high school.

Flanagan, 1973 - Project TALENT data from 1960-70 showed an increase in realism of career choices of high school boys. Girls were less realistic than boys.

2. Studies and articles that treat aspects of the decision maker's personal characteristics. (The social learning theory focuses on the acquisition of personal characteristics and their impact on CDM.)

Flanagan, 1964 - Differences in the relative levels of informalities Project TALENT individuals displayed often reflected their patterns of interests more than their patterns of abilities.

Amount of formal training in an area positively affected the amount of information acquired in that area.

Most differences found in patterns of information reflected differences in interests.

Gottlieb, 1974 - Graduating college seniors of 1972 were positive and enthusiastic about work; had some apprehensions about future, but had high expectations for personal as well as work lives.

Lee, 1970 - College graduates considered three factors in selecting a job: appealing job, potential for advancement, kind of people in the organization.

Prediger, Roth, & Noeth, 1972 - Students expressed need for help in career decisions.

Stefflre, 1966 - Defines the "occupational persona" as the individual's choice among the masks s/he would like to wear and those that society will permit. An occupation permits an expression of the individual's public personality which is a special instance of differentiation of function. The importance of the work aspect of the public personality--the occupational persona--varies from being psychologically peripheral to being central.

Societal limiting forces that determine the occupational persona of an individual vary from the accidental to the essential.

The occupational persona and the self concept have a symbiotic relationship that moves them toward congruence.

3. Studies that discuss environmental conditions and events. (The social learning theory attempts to link such factors to the CDM outcomes they influence.)

Lee, 1970 - Employers' demands for college graduates were high, especially for engineering graduates.

Business and industry were paying higher starting salaries than were governmental agencies.

C. Literature Specifically Supporting the Propositions

Each proposition presented in Chapter II suggests a number of possible testable hypotheses. This study's literature review indicated that some of these possible hypotheses have been investigated. Empirical studies, theories, and general statements, and literature reviews which relate to each group of propositions are listed here.

1. Propositions IA1 through IA4. These propositions specify factors that positively influence educational or occupational preferences. They state that preferences develop when an individual: receives positive reinforcement for engaging in activities associated with successful performance of a course, occupation, or field of work; observes a valued model being reinforced; is positively reinforced by a valued person who models and/or advocates engaging in the course, occupation or field; or is exposed to positive words and images associated with the course, occupation, or field of work.

- a) Empirical studies of effects of parental encouragement on educational and occupational preferences.

Rehberg & Sinclair, 1970 - A low positive correlation was observed between parental encouragement of achievement and a student's desire to go to college.

Sewell & Shah, 1968 - Boys' perceived parental encouragement was correlated with fathers' level of occupation. Perceived parental encouragement was correlated with college plans, attendance, and graduation.

Sewell & Shah, 1968 - Parental encouragement correlated with desire to attend college. Parental encouragement was the most powerful influencer toward college with students of high intelligence and high SES.

Trent & Medsker, 1968 - College attendance was related to students' perceptions of their parents as emotionally supportive, alert, and interested in their progress.

- b) Empirical studies on the effects of positive reinforcement by valued models.
 - Carlin, 1960 - Favorite teachers appeared to influence choice of major except for Physical Education.
 - Hawley, 1972 - More women preparing for non-traditional than for traditional careers stated that significant men in their lives believed women could perform in these areas without jeopardizing marriage or family.
 - Rehberg & Hotchkiss, 1972 - Students tended to increase their educational expectations by a fraction of a year as a result of counseling. Parental encouragement was also a factor.
- c) Empirical studies on individuals who receive positive reinforcement for engaging in activities associated with successful performance in a course, occupation, or field of work.
 - Baird, 1971 - High achieving junior college students tended to be more apt to transfer to a four-year institution.
 - Osipow, 1971 - Probability of change in task preference was greatest under high success reinforcement ratio conditions.
 - Osipow, 1972 - Preferences for less desirable tasks were increased as a result of high success ratios in dealing with those tasks.
- d) Empirical studies treating the effects of observing valued models who are reinforced for engaging in activities associated with successful performance in a course, occupation, or field of work.
 - Almqvist, 1974 - Factors related to women choosing male-dominated occupational areas included role models.
 - Pallone, Rickard, & Hurley, 1970 - Parent of same sex and an appropriate occupational role model were the two most influential figures in vocational development of black and white males and females. Teachers ranked fourth or fifth and counselors seventh or eighth in terms of students' perceptions of their influence.
 - Risch & Beymer, 1967 - Relationship of expressive or instrumental roles pursued by women to same need-dispositions in their mothers.
 - Werts, 1968 - Three broad types of occupations tended to be passed on from father to son: physical sciences, social sciences, and medical occupations. (Author cautions against over-interpretation.)
- e) Empirical studies of the effects of being exposed to positive words and images associated with a course, occupation, or field of work.
 - Astin, 1965 - High aptitude college students tended to maintain career goals to a greater extent when in a college where the environment was compatible with their career goals.

Drew & Astin, 1972 - Undergraduates aimed highest at a school where fellow students had high aspirations and were academically superior.

Tseng & Carter, 1970 - Highly confident high-achievers were more aware of an occupation's prestige and aspired to more prestigious occupations than did the fearful low-achievers.

- f) Theories and more discrete theoretical statements related to these propositions.

Ginzberg, 1972 - Revisions of his 1951 theory. Changed the assertion that occupational choice is a CDM process that is irreversible and culminates in compromise, to: CDM process is potentially open-ended, continuing throughout individual's working life and not limited to early years of work as formerly asserted; no longer sees decisions as irreversible; occupational choice now seen as process of optimization rather than compromise.

New theory statement: "Occupational choice is a life-long process of DM in which the individual seeks to find the optimal fit between his career preparation and goals and the realities of the world of work."

(Recommendation for Study: Further research into social and institutional constraints on the individual's CDM process.)

Kaldor & Zytowski, 1969 - Theory of occupational choice based on economic constructs. Determinants of occupational choice are: chooser's occupational utility functions (preference system); resources or inputs at disposal of individual; anticipated consequences of employing given resources in various occupations with differing potential for gratification. Choices involve maximizing net gain.

Lo Cascio, 1964 - Distinguished between delayed, impaired, and continuous vocational development in terms of career development theory. If vocationally relevant behavior is not available in the individual's behavioral repertoire when s/he is faced with a developmental task, her/his vocational development will be delayed or impaired.

Miller & Tiedeman, 1972 - Cube model: Psychological states (accommodation, clarification, and exploration); problem condition (problem forming, problem solving, solution using); self comprehension (learning about, doing, doing with awareness).

- g) Literature reviews summarizing findings related to this group of propositions, as well as to the social learning theory in general.

Brown, 1970 - Based on a critique of available studies, concluded that:

Vocational choice occurs over a fairly long period of time and is a highly individualized process.
Family influences career choice, both directly and indirectly, but Roe's theory regarding early interaction between parent and child was not substantiated.

Girls arrive earlier at more realistic choices, are influenced by different factors, enter occupations which are somewhat lower in status, and have less predictable vocational choice patterns than boys.

Vocational choice is influenced by cultural and sociological factors.

Horner, Buterbaugh, & Carefoot, 1967 - Reviewed studies from late 1930's to mid 1960's and found that:

Occupational choice is influenced by occupation of father, attitudes of parents toward education, and education of parents.

Farming as an occupation is transmitted from father to son in larger proportions than other occupations.

On-the-job experience influences decision making.

2. Propositions IB1 through IB4. These propositions discuss factors that negatively influence CDM. They suggest that individuals are less likely to express preferences for a course of study, an occupation, or a field of work if they have been punished and/or have not been positively reinforced for engaging in activities related to the course, occupation, or field of work; if they have observed a model receive punishment or little or no reinforcement for such activities; if they have been positively reinforced by a person who expresses negative opinions about the course, occupation, or field of work; or if they have been exposed to negative words and images associated with the course, occupation, or field of work.

- a) There are not many studies supporting hypotheses related to these propositions. Most studies focus on the effects of positive, rather than negative reinforcement. The following studies, while focusing on positive influences, showed that those who were not encouraged to participate in a course, occupation, or field of work tended not to express preference for it.

Hawley, 1972 - More women preparing for non-traditional than for traditional careers stated that significant men in their lives believed women could perform in these areas without jeopardizing marriage or family.

Rehberg & Sinclair, 1970 - Low positive correlation was found between parental encouragement of achievement and a student's desire to go to college.

Sewell & Shah, 1968 - Perceived parental encouragement was observed to be correlated with college plans.

- b) The following study shows that punishment or non-reinforcement (low grades) resulted in rejection of academic careers.

Hind & Wirth, 1969 - Students of high ability in a highly selective university tended to be driven away from academic careers and traditional professions if they received low grades.

3. Propositions IIA1 through IIA3. These propositions focus on factors that positively influence CDM skills. They postulate that the individual is more likely to learn the skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if s/he has been positively reinforced for these responses; has observed real or vicarious models engaged in effective CDM strategies; and/or has access to people and other resources with the necessary information.

- a) Although many theories and theoretical statements are related to this set of propositions, there are few studies of factors which influence acquisition of such skills. The two following are examples.

Gribbons, Halperin, Lohnes, 1966 - Their longitudinal study is reported as a test of Super's theory of vocational maturity. They found that mental condition with respect to vocational planning at any one point in adolescence was predictive of its continuing.

Tyler, 1968 - Study of comparable communities in United States, Netherlands, India. Developed model of cognitive structures individuals employ in making major life choices.

Degree of environmental or situational structure was inversely related to the amount of cognitive structuring individuals did. Pursuit of free time activities was related to familiarity with recreational pursuits.

- b) Theories and theoretical statements supporting these propositions.

Austin, 1974 - Discussed tasks associated with various levels of responsibility in four industrial jobs. Students need information-processing skills, awareness of commonality of requirements across jobs, awareness of the needs in the area of material inspection.

Borow, 1973 - Observed that students were making decisions based on inadequate information.

Clarke, Gelatt, & Levine, 1965 - Suggested the need to improve guidance programs to give students adequate information about possible alternatives, anticipated outcomes, relationships between actions and outcomes, and relative preference for various outcomes.

Gelatt & Clarke, 1967 - Subjective probability estimates play an important part in the decision making process. Primary function of an effective guidance program is the gathering and organizing of a broad base of relevant factual data to be used by students in formulating realistic probability estimates.

Katz, 1966 - Outlined a guidance model for CDM which combines three systems of data: a value system, an information system, and a prediction system (based on concepts of probability). Skills are needed to use data from each of these systems and to integrate them.

Lofquist & Davis, 1969 - Job selection is a complex procedure based on a person's information about herself/himself and employment opportunities. A theory of work adjustment is proposed, based on correspondence between the individual and the work environment in terms of the individual's fulfilling the requirements of the work environment and the work environment's fulfilling the requirements of the individual.

Tiedeman & O'Hara, 1963 - Discussed differentiation and integration as the mechanisms of career development.

- c) Literature reviews of empirical studies providing findings related to these propositions.

Horner, Buterbaugh, & Carefoot, 1967 - On-the-job experiences influence decision making.

Kroll, Dinklage, Lee, Morley, & Wilson, 1970 - Reviewed the career development process. Treated self evaluation, commitment, choice and decision making, teaching CDM, career crises and implications for guidance.

4. Propositions IIB1 to IIB3. These propositions indicate the factors that negatively influence decision making skills. They suggest that an individual is less likely to learn the skills and emotional responses necessary for career planning, self-observing, goal setting, and information seeking if that individual has been punished or not reinforced for such behavior; if s/he has observed real or vicarious models receive punishment or no reinforcement for attempting to engage in CDM activities; or if s/he has little or no access to people and other resources with the necessary information.

No references directly related to the hypotheses implicit in these propositions were found in the review of the literature.

5. Propositions IIIA1 through IIIA3. These propositions identify factors that influence actual entry into educational, training, or occupational opportunities. They predict that an individual is more likely to take actions leading to enrollment in a given course or seek employment in a given occupation or field of work if that individual has recently expressed a preference for that course, occupation, or field of work; if s/he has been exposed to learning and employment opportunities in that course, occupation, or field of work; or if that individual's learned skills match the occupational requirements.

- a) Empirical studies showing educational or occupational entry related to expressed preference.

Astin, 1965 - The most significant factor determining career choice at graduation was students' initial career choices (preferences).

Astin & Bisconti, 1973 - Men tended to select work settings congruent with their career choices.

Flanagan, 1971 - Expressed choice was as predictive of final college major as was test score.

Whitney, 1969 - A person's expressed choice predicted future employment about as well as did interest inventories or combinations of personality and background characteristics.

- b) Empirical studies showing influence of individual's exposure to learning and employment opportunities.

Horner, Buterbaugh, & Carefoot, 1967 - On-the-job experience influenced job decisions.

Johnston & Bachman, 1973 - Employment was correlated with high school work.

- c) Empirical studies of choice related to learned skills matching occupational requirements.

Johnston & Bachman, 1972 - Study of armed services enlistments. Enlistment decisions were made in the context of parental pressure, opinions of friends, and the broader climate of public opinion.

Lee, 1970 - College graduates considered three factors in selecting a job: appealing job, potential for advancement, and the kind of people in the organization.

Mansfield, 1973 - People preferred work for which they felt qualified over jobs requiring abilities they lacked. Self-confidence was positively correlated with high levels of ability to do the work required.

Meir, 1971 - High school students who expressed a liking for skills and functions required in a given occupation expressed a liking for that occupation.

- d) Theories, theoretical statements, models and reports related to these propositions.

Ginzberg, 1972 - Revisions of his 1951 theory. Changed the assertion that occupational choice is a CDM process that is irreversible and culminates in compromise, to: the CDM process is potentially open-ended, continuing throughout individual's working life and not limited to early years of work as formerly asserted; no longer sees decisions as irreversible; occupational choice now seen as process of optimization rather than compromise.

New theory statement: "Occupational choice is a life-long process of DM in which the individual seeks to find the optimal fit between his career preparation and goals and the realities of the world of work."

Haystead, 1971 - Job choice is influenced by variations in alternatives available, knowledge about these alternatives, degree of previous commitment to a particular alternative or range of alternatives, and subject's awareness of this.

Holland, 1973 - His latest statement of career development. Stronger emphasis on vocational problems throughout life. Assumption three of his four main assumptions states that people search for

environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles.

Lofquist & Davis, 1969 - Job selection is a complex procedure based on a person's information about herself or himself and employment opportunities. A theory of work adjustment is proposed in terms of the individual's fulfilling the requirements of the work environment and the work environment's fulfilling the requirements of the individual.

Lane, 1972 - Suggests longitudinal case studies over entire working career of individuals to test thesis that the real determinant of educational choice is to be found in economic differences which are observable only over those careers. Consider decisions in context of an income career and through a person's perceptions of her/his career.

Tyler, 1973 - Students need more help in career planning--assistance in bringing together information about themselves and various training opportunities. Suggests institutional changes needed.

Zytowski, 1969 - Postulate IX of his theory states that the pattern of vocational participation is determined jointly by preference (representing motivation) and by external (situational and environmental) and internal (such as ability) factors.

e) Literature reviews that include summaries of findings related to these propositions.

Horner, Buterbaugh, & Carefoot, 1967 - Review studies from late 1930's to mid 1960's. Findings from the literature reviewed include: occupational choice is influenced by occupation of father, attitudes of parents toward education, and education of parents.

6. Propositions IIIB1 and IIIB2. These propositions entail factors that negatively influenced actual entry into educational, training, or occupational opportunities. They postulate that an individual is less likely to take action leading to enrollment in a given course or employment in a given occupation or field of work if that individual finds that the cost of preparation is excessive in relation to future economic, social and personal rewards; or if s/he is denied access to the minimum resources necessary for entering that training or occupation or field of work.

a) Empirical studies showing entry related to cost of preparation.

Dixon, Fukuda, & Ignacio, 1972 - Academic aspirations were negatively related to financial need.

Horner, Buterbaugh, & Carefoot, 1967 - College attendance was correlated with population concentration and proximity to colleges.

Tillery, 1968 - In Project Scope, three quarters of students reported that cost influenced their decisions about college attendance.

Tuckman, 1970 - Students' decisions to attend college in other states was influenced by the prices of both the in-state and out-of-state colleges.

Tuckman, 1973 - Presence of a junior (or community) college in a community resulted in an increase in enrollments in institutions of higher education and an increase in the proportion of college-bound students choosing to attend junior college.

Vander Well, 1970 - Students with financial needs formed earlier crystallized occupational choices than those without such needs. Students with financial needs showed a greater tendency to persist with their early occupational choice commitment.

b) Theories and theoretical statements related to these propositions.

Becker, 1964 - Theory of investment of human capital. Expected returns are motivators. Expected returns are greater for younger men than for older workers, or for women. Therefore, younger men are more motivated to invest in training. Rate of return on investment of education is due to a complex interaction of factors, but college education constitutes the largest single variable. Rate of return = 10%.

Freeman, 1971 - Presents an economic theory of CDM. A major assumption: within the constraints set by the market and by personal abilities, the individual selects the occupation that maximizes her or his utility function. Individual calculates expected life income, compares utility of each career, and selects career that offers greatest total utility. Study of career plans, labor market information, and economic factors that affect decision. Results in percentages: 60% of undergrads and 42% of grads subject to change in career choice. 16% of undergrads and 12% of grads considered available information inadequate. Students realistic about expected incomes.

Hansen, 1963 - Explores school-related expenditures incurred by society as well as by individuals. Constructs lifetime cost-income streams for each level of schooling (1949 data).

Conclusion: Marginal rates of return rise with more schooling up to the completion of the eighth grade and then fall off to the completion of college.

Schultz, 1961 - Capital investment includes cost of education, foregone wages, health care, on-the-job training, migration and leisure activities. Policy implications: discriminatory effects of tax laws and lending policies, hindrances of free choice of a profession, detrimental effects of unemployment, needs of special groups, and role of public investment.

Schultz, 1963 - Provides an economic analysis of education as investment and consumption. Concludes that foregone income accounts for about three-fifths of the cost of college education. Cost ratio greatest for low income families. Risk greater for low income individual.

Schultz, 1967 - With uncertain future, returns on schooling are largely unpredictable.

Singell, 1972 - Continued education is not a successful economic venture for low SES nonwhites because: less expendable income, but proportionately higher costs for continuing education; loss to family of student's income is proportionately higher for this group; and rate of return in future is less than for middle class whites.

D. Non-Conflicting but Nonsupportive Literature

Many of the references reviewed furnish interesting information which, although it does not directly address hypotheses implicit in the propositions of this study's social learning theory of CDM, is not in conflict with the propositions. These studies, theories and reviews are listed below in several sections. Their annotations appear in Appendix C.

1. Correlational Studies.

There are many correlational studies of independent variables related to preferences and choices. Their findings do not explain the causative impact specific aspects of such variables have on critical CDM outcomes (such as the preferences, skills, and selection decisions around which this study's theoretical propositions are organized). As a result, they do not add to an understanding of CDM. These studies correlated college attendance or career choice and specific factors such as socioeconomic status, grade point average, parents' occupations, sex affiliation, academic aptitudes, religion and values, ethnic group, parents' wishes, residence, intelligence, parents' education, size of college, and dependence.

Almquist (1974), Ashby (1966), Bachman (1970), Baird, (1971), Berdie and Hood (1965), Berman (1972), Blaikie (1971), Brookover, Erickson, and Joiner (1967), Carlin (1966), Cohen (1965), Cosby and Picou (1973), Curry and Picou (1971), Davis (1966), Dilley (1965), Dixon, Fukuda, and Ignacio (1972), Dole (1969), Drew and Astin (1972), Duncan, Featherman, and Duncan (1972), Elliott (1968), Flanagan (1964), Flanagan (1971), Forslund and Malry (1970), Gribbons and Lohnes (1968), Hager, (1971), Kahl (1953), Kamens (1971), Kandel and Lesser (1969), Kim (1968), Marr (1965), Meir and Friedland (1971), Pavaiko (1971), Perrone (1964), Sanborn, (1965), Sewell and Shah (1967), Sewell and Shah (1968), Tillery (1967), Tillery, Sherman, and Donovan (1967), Trent and Medsker (1968), Tseng and Carter (1970), Tuckman (1971), Werts (1966).

Another group of correlational studies studied how life goals and career selection relate to vocational interests and career preferences.

Astin and Nichols, (1964), Madaus and O'Hara, (1967), Olive (1973), Roe and Siegelman (1964), Sorensen (1972).

A third set of correlation studies related decisions to leave school with: excessive absences, Stroup and Robins, (1972); sex and numbers of occupational choices, Siegel, (1973); and vocational maturity, Super and Overstreet, (1966).

2. Studies of operationalized constructs unrelated to this theory.

Included in this category are studies of job satisfaction, stability, occupational attainment, and occupational success.

Astin and Myint (1971), Blau and Duncan (1967), Blum (1961), Bowles (1973), Featherman (1970), Greenhaus (1971), Gysbers, Johnston, and Gust (1968), Hali (1969), Haller and Portes (1973), Hilton (1971), Johnston and Bachman (1973), McLaughlin and Tiedeman (1974).

Studies related to self concept.

Berg (1971), Day (1972), Greenhaus (1970), Hawley (1972), Hunt (1967), Hurley (1972), Resnick (1970), Wheeler and Carnes (1968), Ziegler (1970, 1972, 1973).

A third set in this category entails studies focusing on separate variables. One variable includes personality types Davis, (1965); Elton and Rose, (1970); Holland, (1965); Holland, (1968); Hughes, (1972); and Tuckman, (1968). Other variables include: occupational mobility, Salomone and Gould, (1974); vocational maturity, Crites, (1971); and similar factors Binderman, (1972); Cole, Whitney, and Holland, (1971); Harren, (1966); Panel on Youth, (1973); Tillery, Sherman, and Donovan, (1969); and Vondracek and Kirchner, (1974).

3. Studies of operationalized but unconfirmed constructs.

This category includes studies that are specific and operational, but the hypotheses they investigated were not confirmed, their findings were inconclusive, or statistics were not available.

Anderson and Olsen (1965), Brunkan (1965), Brunkan (1966), Carroll (1966), Folson (1971), Hall and Wiant (1973), Hountras (1972), Kimball, Sedlacek and Brooks (1971), Leventhal (1969), Malnig (1968), Morrow (1971), Nelson (1973), Phillips (1972).

4. General statements not specifically related to this theory.

Theories, theoretical statements, models, and reports specifically related to this theory were referenced earlier in this chapter under each of the propositions. Those listed below are general statements, impressions, and theories or models. Examples of theories and theoretical statements include Caplow (1954), Holland (1973), Simon (1966), Super (1969), and Zytowski (1969).

Models of CDM have been provided by Bordin, Nachmann, and Segal (1963), Burchinal, Haller, and Taves (1962), Featherman (1971), Gintis (1971), and Gross (1969). General statements of impressions that have an economic emphasis have been made by National Bureau of Economic Research (1966), Schultz (1961), Schultz (1967), Shaffer (1961), Singell (1972), Striner (1972), and Tuckman (1974).

Other general statements have been made with more of a sociological emphasis by Freeman and Breneman (1974), Gross (1967), Haystead (1971), Musgrave (1968), and Terkel (1974). General discussions of life stages are provided by Hershenson (1969) and the need for guidance programs is emphasized by Borow (1973) and Shaw (1968).

5. Reviews and critiques not specifically related to this theory.

This final category covers general reviews, summaries, and critiques for which the content could not be referenced according to this theory's propositions. These references include Bachman, Kahn, Mednick, Davidson and Johnston (1967), Borow (1973), Burchinal, Haller, and Taves (1962, Crites (1965), Fingerit, Tobin and Mast (1967), Gintis (1971), Hodge, Siegel and Rossi (1964), Jepsen and Dilley (1974), Kuvlesky and Pelham (1966), Norton (1970), and Zytowski (1970).

E. Conclusions

The preceding pages present evidence that the subject of CDM has commanded considerable attention from theoreticians and empiricists, and somewhat less attention from program developers. It also shows that the majority of the studies have focused either on correlations between independent variables, or on the effects on decision making of such factors as self-concept and personality type.

This project's system of classifying the theories, statements and studies highlights two critical facts: 1) there are serious gaps in the literature related to understanding of CDM; and 2) there is little relationship among the studies. The authors recommend that NIE develop a CDM program statement to which existing evidence can be related, and to which future studies will be addressed. It is further recommended that NIE capitalize on the work of this project by using the Social Learning Theory of CDM and the information in this chapter as a point of departure. Chapter IV of this report provides suggestions for practical applications of the theory to program development and evaluative research. Chapter V presents a suggested program approach to CDM research, based on the social learning theory, with recommendations for immediate action on priority issues.

Chapter IV

PRACTICAL APPLICATIONS: ILLUSTRATIONS OF PROGRAM INTERVENTIONS

H. B. Gelatt

A. Focus of This Chapter

As noted earlier, one purpose of this project was to increase understanding of CDM. Chapter II presented a social learning theory of CDM and 19 propositions based on the theory. Each proposition suggests a number of possible hypotheses, some of which have been tested, others of which remain unsupported. Chapter III synthesizes the literature around these propositions, using a classification system which clearly outlines the areas where further research is needed.

A second purpose of this study was to improve prediction of decisions and their consequences. Questions such as the following are implicit in this second purpose: What is the role of unplanned, unpredicted, as well as predictable influencers on CDM? Is prediction possible? Is prediction desirable?

The third purpose entails determining whether any value accrues from either direct or indirect interventions designed to improve individuals' CDM in terms of available options and/or outcomes. For instance, if unplanned, unpredicted influencers predominate, there may be little value in any attempt to intervene. If interventions are desirable and feasible, on the basis of what values should they be made? Should the emphasis be on benefits to the individual, to society, or to both? If benefits to the individual are to predominate, the emphasis might be on increasing each individual's CDM options by indirect interventions which decrease environmental constraints, or by intervening directly with the individual to increase her/his competencies and willingness to perform decision making tasks.

If benefits to society are paramount, the emphasis might be on direct interventions which train people to choose what society needs, or on indirect interventions which would increase systemic/institutional benefits without considering individual benefits. Attempts to implement interventions which would benefit both the individual and society might include direct interventions which would develop the magical balance of individual freedom, control and autonomy with social responsibility, or indirect intervention which would create a society with institutions that have major purposes involving a similar balance of social responsibility, individual dignity, and institutional benefits.

This chapter will show how the theory developed in Chapter II, and the propositions for which there is extant support (Chapter III), might be used to suggest possible interventions to influence some CDM goals and outcomes. The chapter is addressed primarily to program developers and program evaluators, and is designed to encourage immediate application of the theory in those areas that have been at least partially supported by research.

The first step in designing intervention programs is to decide on the goals to be achieved; goals are reflections of values. This study's CDM theory

describes how behavior is acquired; it does not define the behavior as good or bad. Whether the resultant behavior is desirable or undesirable (from the individual's or from society's point of view - or from both), can be determined only by using a value template which is representative of the values of the individual or group whose purposes are to be served. For example, one person may believe it is desirable to pass laws (indirect intervention) or to train individuals (direct intervention) so that everyone has the opportunity and the ability to access education beyond high school. Another person may believe that such a goal is undesirable for society, or unnecessary for certain individuals, or too costly in relation to the benefits to be derived. Some may argue that career selection should be left to natural processes - that is, they believe that economic supply and demand, genetic and cultural influencers, chance factors, and idiosyncratic behavior patterns will and should determine occupational choices, and that intervention into this process is inappropriate. Still others may argue that CDM intervention has not been proved to be effective, and therefore is not worth the cost.

The authors believe that interventions to improve CDM are possible and desirable. Further, they are convinced that since the theory presented here explains the process by which individuals reach their decisions, it provides a theoretical base for designing intervention programs.

To illustrate how this theory may suggest interventions regardless of the value orientation of the person(s) designing the interventions, the authors have selected six goals and will show how each goal might be achieved through direct and through indirect intervention, to serve both individual and societal needs. The six goals are not intended to represent the "right" goals, the "best" goals or even "important" goals. They are examples only, and were derived from the products of the study. First, they are related to those propositions presented in Chapter II for which some empirical support has been referenced in Chapter III. The 19 propositions were organized around three elements; those elements, and the goals related to each, are:

- 1) factors influencing preferences (Goals 1 and 6)
- 2) factors influencing CDM skills (Goals 3, 4, 5, and 6)
- 3) factors influencing actual entry into training or occupational opportunities (Goals 1, 2, and 6)

Second, the six goals represent examples of the six issues which emerged from various phases of the study, including the literature review, meetings of the National Advisory Panel, and the regional workshops this study's staff conducted in four sections of the country. These issues were identified as major theoretical and practical concerns related to CDM. They represent the thinking of psychologists, economists, sociologists, and educators.

The term intervention refers to actions which are intended to modify or to produce a new condition. The interventions which are discussed here are intended to achieve the conditions related to the six goals.

B. Interventions for Each of Six Goals

GOAL 1: To achieve a better balance between the number of trained workers in each occupation and the number of job opportunities.

- a. Basis for this goal. This goal relates to an issue which would explore

the private and external benefits and costs involved in career preference and selection. It is an economic issue, and is related to the career decision maker's perceptions, evaluations, and anticipations of the two types of benefits and costs.

The goal is also related to Propositions IB1, IB2, and IIIA2, which treat the effects of information, non-reinforcement, punishment, and observation of models on educational and occupational preferences and choices.

b. Rationale. If it could be argued that both society and the individual would benefit if this goal were achieved, the goal would be considered desirable. In the following illustration, it is assumed that if interventions to achieve this goal were employed, society would benefit by having fewer shortages of trained workers and fewer workers trained for occupations for which there are few opportunities; and that individuals would benefit from having career opportunities available to them in the occupations for which they have been trained.

c. Possible intervention programs. Interventions toward this goal could focus on influencing the number of workers entering training or influencing the number of job opportunities, or both. Either direct or indirect intervention strategies could be used. Before a program could be designed, data projecting numbers of workers who will be needed in each occupation at various future points in the work lives of those now entering training would need to be ascertained. Obviously, with the future increasingly unpredictable, it would be impractical if not impossible to focus on more than a few key occupations. This illustration focuses on two occupations - elementary school teachers and city managers. If future trends indicate that fewer elementary school teachers and more city managers will be needed, what interventions will achieve a better balance as stated in Goal 1?

- i) Indirect interventions. To modify decision makers' perceptions of the desirability of these two occupations, and thus cause fewer persons to choose elementary school teaching and more to choose city management, incentives such as scholarships, stipends and other attractive rewards could be developed for those training for city management, while entrance requirements could be stiffened and quotas reduced for those wishing to train for elementary school teaching. The use of effective, prestigious models in television programs, advertisements, and books could be used to call attention to the rewards of life as a city manager, and the difficulties of life as an elementary school teacher. The 1973 television series introduced by CBS-TV, produced by Sutherland Learning Associates, called "The Kingdom of Could Be You" is an example of this kind of program. The purpose of the series produced for pre-schoolers and early elementary children was to explore what people did when they worked at their jobs. The stipend and awards given in the fields of mathematics and science under the National Defense Education Act is another example of such a strategy.
- ii) Direct interventions. A program could be designed for use in schools, employment agencies, and other brokerage systems, to bring to decision makers accurate information about the future needs in both occupations. This information would include helping the individual experience the "feel" of the occupation as it exists within the organizational structure; the odds in favor of initial and continued employment after training; the characteristics and qualifications associated

with success in each occupation; probable rate of return on investment in training; pecuniary and non-pecuniary benefits; probable opportunities for retraining, using a career ladder concept; and individual counseling.

d. Benefits derived from interventions. To achieve the balance stated in Goal 1, it might be necessary to use both direct and indirect interventions. The ideal would be a program that would benefit both the individual and society. But even though such may appear to be the case, careful evaluation of intervention programs may uncover some unplanned and possibly undesirable outcomes. In the case of the interventions outlined above, undesirable outcomes might include reduction of individual freedom, encouragement of people with inappropriate or inadequate skills to enter careers as city managers and production of a group of decision makers with inaccurate perceptions of both occupations and of future job needs.

GOAL 2: To make futures projections available to individuals for use in career planning and decision making.

a. Basis for this goal. This goal relates to the issue which involves the role of unknown future changes on career planning and decision making. For example, what is the effect of the changing culture on the CDM process: Can individuals' preparation for future conditions be facilitated?

The goal is also related to Propositions IIA3 and IIIA2. These propositions treat the relationship between access to people, resources, and information and the acquisition of CDM skills and actions.

b. Rationale. The current problem that this goal addresses is that the future is becoming increasingly unpredictable. Career decisions in one given set of circumstances may be completely inappropriate in another. The following illustration of interventions designed to reach Goal 2 assumes that individuals' CDM would be improved if they knew what their lives might be like in several possible futures. If the decision maker will have access to systematically derived plausible future projections and will have the basis of these projections, decisions could be made on the basis of the most plausible, the most desirable, or some combination of these. The basic premise here is that having a multi-dimensional base for predictions of the future and making these projections available to career decision makers, could increase their ability to choose wisely.

c. Possible intervention programs. Both indirect and direct interventions will be used for illustrative purposes on Goal 2.

i) Indirect interventions. The federal government could offer grants to several institutions and/or individuals for the purpose of developing alternative future projections related to career development. This goal, like Goal 1, requires information about the future. Therefore, one significant program development need would be to have such projections systematically and continually made available. One example of a technique for projecting possible futures is the Field Anomaly Relaxation (FAR) Method developed by Patterns and Systems, Incorporated, for the Stanford Research Institute. Findings could be presented by television, through schools, through employment agencies and in the popular press.

ii) Direct interventions. As part of CDM programs, school districts

and county or state systems could design and offer courses in the knowledge and use of such future projections developed previously. Counselors or consultants with such knowledge and data could be made available to decision makers. According to this study's theory and propositions, such educational assistance should not only make predictive information easily accessible in meaningful ways but should be tailored to the skill level of students and made interesting and pertinent to the target population.

This might suggest that program developers would provide plausible future projections about the sixth grade for fourth graders or about high school for eighth graders, etc. Students would learn and practice the skills of predicting unknown futures. Using past history of career growth and development, scripts projecting to 1970, for example, could be developed and presented to students who would role play making career plans in 1960.

The Life Career Game and other simulation games are examples of interventions which involve making decisions using information about future projections. The Educational Research Information Center (ERIC) Life Career Development System is a curriculum emphasizing futuristic thinking and behavior.

A well planned program strategy tailored to the skill level of students would involve simple, immediate decisions such as planning a picnic tomorrow using weather predictions, as well as complex, long range decisions about life style in a future 20 years ahead. Such a development program also would include interventions in kindergarten as well as adult education.

d. Benefits derived from these interventions. Evaluation of the results of these intervention programs might be expected to show that the individual will benefit because some of the uncertainty and guesswork related to planning for an unknown future will be reduced. The decision maker also will have several alternative future projections to consider and the freedom to select the one she/he prefers to utilize.

Society might benefit in several ways. First, such future projections would be available for decisions to be made by groups, organizations, governmental and social agencies. These organizations could have their decision making process improved in the same way that individuals could. Second, if individuals are provided with more carefully developed data about futures related to jobs and occupations, there are likely to be fewer individuals who are dissatisfied because they were discouraged from choosing certain careers.

GOAL 3: To increase individuals' repertoires of CDM skills.

a. Basis for this goal. This goal involves the role of different CDM styles for different people and for different decisions. It is related to Propositions IIA1, IIA2 and IIA3. These propositions suggest that the learning of cognitive and performance skills and emotional responses necessary for decision making is facilitated by an individual's receiving positive reinforcement for performance, observing effective real and vicarious models, and obtaining access to people and resources with CDM information.

b. Rationale. It can be assumed for the following illustration that individuals' freedom, power and control are increased if their repertoires of skills for deciding are increased, and that intervention to achieve Goal 3 is desirable. A contemporary problem is the unequal distribution of opportunity. Improved decision making skills can increase opportunities; skills in collecting and using information and in seeking alternatives can increase freedom. A person cannot choose an alternative if she/he does not know about it, any more than she/he could choose that alternative if her/his freedom is restricted by law, custom, or discrimination. With a larger set of decision making skills, individuals can choose which set to use for which decisions, or can choose not to use them at all. Without such repertoires, their choices are limited.

c. Possible intervention programs. Once again, both indirect and direct interventions will be outlined for accomplishing this goal.

- i) Indirect interventions. A community, state, or federal government supported training program for all parents who would both teach and model effective decision making illustrates an indirect intervention strategy. This program would go beyond most parent education programs. The explicit objective would be to teach parents how to be effective real models of CDM. The application of recent educational research to the role of modeling in learning could be the basis of the curriculum for this intervention. It would be hypothesized that students whose parents were effectively practicing CDM skills and consciously demonstrating them, would be more likely to learn and apply these skills to their own CDM.
- ii) Direct interventions. A systematic program of teaching students skills in collecting and using information could be developed for grades K-12. For example, normal, everyday decisions that kindergarten children make could be discussed. Students could learn that they do have some power and control over their lives and that they can learn to increase that control. As students continue through elementary school, this process could continue, being sure that their efforts are consistently rewarded and never punished and that opportunities are presented so they can practice these skills in school. Students (as well as teachers) are increasingly demanding more decision making power in their school life. This fact provides learning opportunities for students (and, perhaps, the staff) to develop and practice the information skills of decision making.

To be sure that students observed real models engaged in effective decision making, teachers and counselors could receive similar training. If counselors, for example, utilized effective decision making strategies during counseling sessions with students (and verbalized the use of such strategies) students would be more likely to learn and use these same strategies. The same results would be true for teachers and other adults.

The College Entrance Examination Board junior high curriculum Deciding and senior high/adult curriculum Decisions and Outcomes are examples of such programs. Bread and Butterflies by the Agency for Instructional Television is another example.

Again, the most powerful intervention strategy could be a comprehensive, sequential, developmental program beginning in early childhood

through adulthood. Decisions about such alternatives as kindergarten activities, when and how long to practice certain skills in fourth grade, how to spend leisure time, what kind of phonograph equipment to buy, could all be decisions where skills would be learned and practiced and where appropriate modeling and reinforcement were utilized.

d. Benefits derived from intervention. Evaluative research should be applied to these program efforts to determine the planned and unplanned outcomes they produce. The intervention programs described above could result in benefits both to individuals and to society. Individuals could see themselves as decision makers, as persons with power to influence their own lives. They could be more apt to make decisions that could have positive results, both for themselves and others, and could be more willing to live with the consequences of their decisions. Decisions could be more likely to have satisfying personal benefits.

Society could benefit in that there could be fewer persons dependent on government agencies. Because individuals could be making choices wisely, there could be less unemployment, fewer problems of maintaining self while retraining, and better returns on investments in government sponsored training programs.

GOAL 4: To improve all individuals' accessibility to knowledge and feelings about occupations as they exist within an organizational structure.

a. Basis for this goal. This goal comes from an issue which seeks to explore the roles of planned and unplanned events in CDM, and the degree to which job satisfaction is dependent upon whether or not these events were planned or unplanned.

The goal is also related to Proposition IIA3. The proposition suggests the importance of individuals' having access to people, resources, and information when learning CDM skills and when planning and considering career goals and options.

b. Rationale. There are often unplanned social constraints that operate against an individual's rational CDM processes. One example is social class which often determines a person's place in society and her/his access to first-hand knowledge about certain occupations. Another example is that the incumbents of the occupation often control the information flow about the occupation. Barriers to information are often set up to protect against "intrusion," as well as to preserve the mythical status of some occupations. Such barriers produce serious problems in career selection. One problem entails the individual's not choosing an occupation because she/he did not have access to knowledge about it. Another problem is the individual's selecting an occupation on the basis of limited (propaganda) information controlled by the occupation itself.

Goal 4 is addressed to these problems. The goal is an attempt to minimize the chance, unplanned factors involved in getting occupational information before a person selects a job. It is assumed that if an individual's access to such information were improved, that if it were not controlled by the occupation or influenced by social class, the likelihood of selecting an occupation which would meet her/his criteria of job satisfaction would be increased.

The interventions suggested here are primarily aimed at helping young people find out what occupations are really like. They attempt to provide in-

depth, feeling level perceptions of occupations. This intimate view is usually denied to outsiders. Another related purpose is to view organizational structure and its impact on career development. That is, organizations, by their very nature, provide new and different job opportunities beyond the entry level job or they restrict and limit job opportunities. A look at this kind of specific organizational influence is rarely available to young decision makers.

c. Possible intervention programs. Both types are illustrated below.

- i) Indirect interventions. Case studies could be conducted to get at the workers' knowledge and feelings about occupations. The United States Department of Labor could be encouraged to design a structure for studying and disseminating knowledge and feelings about occupations as they exist within organizations. Television dramas and documentaries, as well as government printed materials using the information from the above studies, could be made available through multiple sources. Laws could be proposed and enacted to enjoin business and professional organizations from controlling the flow and direction of information about their occupations. There is a need to explore ways to counteract false occupational impressions that are fostered both accidentally and deliberately, to remove the myths surrounding many occupations, and to bring to all occupational information a dimension that will reduce the gap between occupational stereotypes and occupational reality. The "truth in advertising" restraints that are currently placed on product manufacturers, could be extended to cover dispensers of information about occupations. There is room here for considerable creativity and initiative.
- ii) Direct interventions. Local business and industrial organizations could offer on-site mini-courses in their facilities. To avoid a curriculum composed of the "company line," part of the program development could be coordinated by an educator skilled in organizational development. Part of such a curriculum could be based on real occupational data from sociological studies using ethnographic analyses, case studies, and participant observation. Although it would be impossible to get such a view of very many businesses and organizations, a decision maker could profit by such an experience to the extent that it was generalizable. A carefully designed curriculum could be provided to produce generalizations. The decision maker could at least learn what to look for when selecting an organization for which to work. Schools in Huntington Beach, Los Angeles City, and Salinas, California provide programs aimed at realization of Goal 4.

Another direct intervention has several existing examples. Work Experience Education Programs, Work-Study Programs, New Careers, Cooperative Work Programs, and Exploratory Experiences Programs are illustrations of interventions which attempt to provide young decision makers with first-hand, on-the-job experience. These programs range from extensive, direct paid work experience to brief observational posts without credit. The intention is to allow students to become "insiders" at least momentarily.

Career Closeups, Culver City Unified School District, Culver City, California and Exploratory Experiences, Palo Alto Unified School District, Palo Alto, California are specific examples of school

programs. Again, since it is impossible for one individual to experience very many jobs first-hand before selecting a career, it is desirable to provide learning experiences on what feelings and non-job activities are important to the individual on a job in terms of her/his experience. Job Experience kits, films, filmstrips, and videotapes are all examples of media for providing vicarious job experiences in order to help individuals gain access to occupational knowledge and feelings.

d. Benefits derived from interventions. If individual benefits were the emphasis, both direct and indirect interventions should be implemented in order to reach as many individuals as possible, and to structure situations in which such persons could have access to the occupational knowledge and feelings as they exist in organizational structures. Individuals could benefit to the extent that they take advantage of opportunities to explore these facets of various occupations. They could be more likely to be satisfied on the job, because prior knowledge of the job would have been more accurate than that which is generally available currently. They could plan ahead, because they would know the directions into which various job skills and attitudes would propel them. They could experience a sense of self-directedness that could represent improved states of mental health.

If societal benefits were primary, various cautions would be in order. For instance, if everyone had full access to knowledge and feelings about every occupation, some very essential occupations might not attract enough workers. Programs might be necessary to emphasize the benefits and minimize the problems in such jobs; this would be in direct antithesis to the goal. Therefore, interventions designed to reach this goal would be contraindicated. On the other hand, it is possible for interventions related to this goal to have both individual and societal benefits. Individual benefits have been noted above. Societal benefits would include an informed citizenry with fewer social problems since more of their needs would be met on the job.

GOAL 5: To increase individuals' ability to evaluate their decision making processes.

a. Basis for this goal. This goal involves the role of assessment and evaluation of the various CDM processes. It derives from propositions IIA1 and IIA2. These propositions hold that individuals are more likely to learn the cognitive and performance skills and emotional responses necessary for CDM if they have been positively reinforced for these responses or if they have observed real or vicarious models engaged in effective CDM strategies.

b. Rationale This study's theory holds that CDM is a developmental process which continues throughout a person's life; this is consistent with the authors' definition of career being synonymous with life, as one's career moves through many educational and occupational decisions and placements. Several decision making skills seem to be available. Some are used by different people, at different times, and for different decisions. If CDM involves various skills, it follows that individuals should be taught these skills and should be able to choose when to use them.

If these assumptions are accepted, it would seem important for individuals to learn how to evaluate these skills, the strategies, and their use. If there are several kinds of CDM processes used at different times by different people, it would be valuable for individuals to know the relative effectiveness

of these at the time choices are made.

From the societal viewpoint, much of the success of a democratic society depends on the capacity of individuals and groups to make decisions. Therefore, if individuals had the ability to learn and evaluate effective individual and group decision making, the results would benefit a democratic society. Until recently, very little program development attempting to teach individuals how to make decisions has taken place. Even less such development has occurred to systematically teach individuals how to evaluate this process. Since the question "Can CDM be evaluated?" has not been clearly answered, the first intervention for Goa? 5 would be the development of procedures and techniques (skills) to assess and evaluate the process and its outcomes at the various intervals while the process is employed by individuals. After these skills are developed, it will be possible to apply interventions, as suggested in propositions IIA1 and IIA2, to increase individuals' ability to use the skills.

c. Possible intervention programs. Since self-evaluation is a very private and individual process that generally requires evaluation input from an objective person or source, the use of indirect intervention is apt to be only minimally effective. However, for purposes of illustration, and to provide a catalyst for possible program development which could reach a much broader segment of the population than can be reached through direct interventions, suggested strategies for both types are presented below.

- i) Indirect interventions. One strategy would be to develop a campaign to be sponsored by the government, the purpose of which would be to incorporate into all municipal, state, and national elections, printed and television presented materials which take the voter through the steps of a decision-making process and which help her/him assess the consequences of her/his decisions. Most elections now provide pro and con statements for each ballot issue, and platform statements for each candidate; however, no attempt is made to assist the voter to use these and other materials to relate these to her/his own values and goals and to make informed decisions. The program suggested here would include a process for showing the voter what and who she/he had voted for - the issues and platform statements - immediately after the elections, and at 6- and 12-month intervals thereafter. The follow-up information would help the voter relate the results of the implementation of the ballot issue or the track record of the elected official, in terms of her/his own preassessment and the campaign promises. Although individuals' use of the system would constitute a direct intervention, the design and implementation of it entails indirect intervention activities.
- ii) Direct interventions. Program developers must first attend to the problem of specifying a set of evaluation skills relevant to different evaluation purposes. What the individual decision maker will need in terms of evaluation skills will vary according to her/his particular reason for choosing a decision strategy at each decision point. If, for example, Jane wants to make a decision now so that she can keep future career options open, she will want the skills and the evaluation data most appropriate for this task. However, if John wants to make a decision now so that his choice will produce the most desirable immediate results, a different process may be more appropriate. In the first case, Jane's decision making will be evaluated on the basis of her collection and use of information about future options and probabilities. In the second case, John's

decision making will be evaluated on the basis of his collection and use of information about immediate results and his understanding of what is most desirable to him.

Simulated Occupational Choice (SOC) is one example of an attempt to develop techniques for evaluating CDM. SOC is being developed by Martin Katz at Educational Testing Service, Princeton, New Jersey.

Once procedures and techniques for evaluating CDM skills and outcomes have been sufficiently refined for general use by individuals, the propositions IIA1 and IIA2 can help in designing programs to increase individuals' application of these techniques. Earlier in this chapter, these propositions were applied to Goal 3, the teaching of other CDM skills.

Similarly, the evaluation skills of CDM would be most effectively learned and used if the program development were tailored to the skill level of students, beginning with young children's everyday decisions, and continued throughout the students' development into more complex, difficult career choices. When a student faces the choice of what shirt to wear, or how to spend vacation, or what college to attend, how does she/he know when a good decision is made, at the time the decision is made? The concepts of this study's social learning theory of CDM can be applied to help individuals develop these self-evaluation skills.

d. Benefits derived from interventions. Individual benefits of these strategies are obvious. If individuals are trained to see themselves as decision makers, and to take an active, directed part in making and evaluating decisions, they could be much more likely to be satisfied with their decisions, to know why some decisions did not result in satisfying outcomes, and to continuously sharpen their ability to make decisions which will have satisfying results.

Benefits to society could be an actively informed and responsible citizenry making the democratic process functional. Any broad scale implementation of programs designed to improve individuals' ability to evaluate their decisions could result in those individuals' questioning government decisions to an even greater degree than they are doing now. Society's values could be subjected to change. If these possible outcomes are undesirable from society's standpoint, no such program should be implemented.

GOAL 6: To increase learning experiences which help individuals develop and clarify more than one area of occupational interest.

a. Basis for this goal. This goal comes from the issue which involves the role of specific learning experiences and interactions among them in occupational choices. It is related to propositions IA1, IIA3, and IIIA2. These propositions involve the role of positive reinforcement of individuals' career-related activities; the importance of access to people, resources and information about careers; and the significance of granting or denying exposure to opportunities for learning or entering careers.

b. Rationale. If interests and preferences are the result of learning experiences and if a person with more interests and more options from which to choose is in a stronger CDM position, then achieving this goal should enhance individuals' CDM. When a person is "selected into" an occupation because of

circumstances over which she/he has little or no control, that person's freedom is limited. Increasing options, therefore, should contribute to increased individual freedom. The subtle and not so subtle socialization of women and minorities in relation to career aspirations are examples of such limited freedom. This socialization limits the learning experiences of these individuals, whereas expanded experiences could lead to more occupational preferences and choices.

c. Possible intervention programs. Once again, illustrations of both types of interventions are attempted below.

- i) Indirect interventions. Recent legislation, Affirmative Action Programs, Equal Employment Opportunity are illustrations of interventions intended to increase the learning and employment opportunities of women and racial minorities. In the past, elements of all three propositions mentioned above have been missing from the learning experiences of target groups like these. The forces that prevented such learning experiences may have been cultural, political, legal or attitudinal, but they were usually indirect and powerful.

Increasing their learning experiences to help these career decision makers consider more occupations will require equally powerful bases for such interventions. For example, the recruiting efforts of universities and certain occupational organizations aimed at attracting women and racial minorities are often aggressive in providing information about available opportunities. Rewards and incentives are also provided to increase the reinforcement such individuals receive for considering these opportunities. These actions are primarily the result of federal legislation and recent cultural awareness activities, all indirect interventions.

Federal financial aid programs for college admissions provide an example of a powerful indirect intervention involving Goal 6 and all three propositions. Newspaper articles, television shows, advertisements, films, books, and magazine promotions, showing women and ethnic minorities in various occupational roles, are illustrations of efforts to influence the target groups to consider previously little-considered areas of occupational choice.

- ii) Direct interventions. Such strategies often emerge from or build upon the indirect interventions such as the university recruiting activities mentioned above. The Women in Apprenticeship Program (WAP) of San Francisco is a specific example.

Another illustration of a direct intervention includes directly providing experiences in a broad range of occupational roles or related activities to a specific target population and making certain that these individuals are successful, consistently reinforced, and associate their successful performance with certain occupational roles. Such direct intervention strategies could be classroom learning experiences or community or occupational related experiences in combination. Some of the examples given under Goal 4 also apply here.

d. Benefits derived from interventions. Use of intervention strategies to attain Goal 6 could produce benefits for both individuals and society. Indi-

vidual benefits could include increased flexibility in choosing, training for, and entering occupations at various points throughout each individual's occupational life. A diversity of interests which had been clarified and developed could help a person adapt to changing situations of employment, and still maintain satisfaction in her/his work.

A more flexible work force could also benefit society, in that there could be less need for government agency assistance when societal needs and conditions required transition of many workers from one job to another. It could also insure the development and maintenance of a corps of workers willing and able to train for and enter new occupations as they emerge.

If it were to society's advantage to keep people channeled into one area of employment, with little or no seeking of change, intervention strategies to reach Goal 6 would be contraindicated.

C. Summary

This study's theory of CDM explains how diverse types of personal and environmental influencers interact and affect decision making outcomes. Chapter II of this document provided some examples of propositions and research hypotheses derived from this theory. Chapter III summarized the literature that was searched for its support.

This chapter has provided for program developers some illustrations of possible direct and indirect interventions utilizing the theory, the propositions, and the research evidence. Once the goals and objectives of any intervention program are agreed upon, the development of program strategies can be facilitated by procedures such as those outlined here.

Chapter V

CDM RESEARCH AND DEVELOPMENT PRIORITIES

G. Brian Jones

A. Deriving Research and Development Issues and Questions

The theory and its propositions outlined in Chapter II suggest a number of research questions that could be addressed by NIE, other public and private agencies, and individuals committed to testing this theory and expanding the body of knowledge currently extant in the area of CDM. In Chapter III, the literature reviewed in relation to these propositions highlighted additional research questions particularly apparent because of the gaps and limited articulation among available CDM studies. The critical nature of some of these questions was accentuated by the six practical illustrations that provide the core of Chapter IV.

The research and development issues and questions reviewed below stem not only from this study's theory and propositions introduced in Chapter I, explicated in Chapter II, related to the available literature in Chapter III, and illustrated in Chapter IV, but also from diverse input gathered from at least three additional sources. First, this study's four workshops containing persons who had principal interests and activities in CDM theory, research, program development, and practice within the fields of economics, sociology, psychology, guidance, and education. The results of these sessions are reported in an AIR/NIE document entitled "Technical Report of Four Regional Workshops on Career Decision Making Conducted for the National Institute of Education, 16 September through 11 October 1974." Second, this study's conference that considered key CDM issues in order to provide input to NIE for further research and development efforts in this area. The six issues addressed by separate presenters and their reactors are summarized and displayed in another AIR/NIE report. This one is entitled "Technical Report of a Conference on Career Decision Making, New York City, 27-28 March." Third, the data bases collected and reviewed for the Careers Research Data Set Index summarized in Chapter VI of this report.

B. Prioritizing these Issues and Questions

As implied in Chapter IV, such priorities cannot be specified by this study's theory. They have to be established as the users of this theory and its propositions make explicit the values and goals they wish to implement in research and practical settings. The selection of the priorities presented in the next section was based on the authors' values and goals. These choices stemmed from generalizations developed from the authors' prior learning experiences and the ones this study provided during 12 months of intense interaction among the authors as well as with the NIE project monitor, members of the NAP, workshop and conference participants, and the data. No rigorous prioritization process was attempted entailing intricate, systematic ranking techniques implemented by a large group of respondents in addition to this study's senior staff.

Team decision making shaped the authors' selection of priorities. The purposes the authors held in mind when selecting these priority issues are as follows:

1. To limit the range to a few key alternatives in order to expedite subsequent NIE decision making if it establishes a grant or contract funding program on CDM research and development.
2. To present a set of priorities that reflects the comprehensive perspective of CDM that NIE asked this AIR study to attain--one which the authors believe is achieved by their social learning theory. This perspective sought to embrace contributions from the fields of psychology, economics, sociology, counseling and guidance, education, and futurism.
3. To produce a set that devotes a balanced focus on both direct interventions (for influencing the career decision maker) and indirect interventions (for influencing environmental conditions that shape career decisions) that can influence career preferences, skills, and entries.
4. To develop a set having comparable emphasis on both the individual and societal benefits of such interventions.
5. To build into each research priority elements insuring that its implementation not only will produce descriptive data adding to the understanding of CDM but also prescriptive evidence documenting how CDM can be improved from the individual and societal viewpoints.
6. To incorporate in this set of priorities research and development issues that ask questions about both the short-term and the long-term effects on and of CDM.
7. To include at least one priority that outlines a rigorous testing and practical investigation of this study's theory of CDM.
8. To incorporate at least one priority calling for a replication of constructs operationalized by other theories and which ultimately might be shown to expand this study's theory or to contradict it.

These eight purposes outline the overall rationale used by the authors in selecting the priorities. One additional need involved a desire to keep the list of priorities focused only on research and development issues and questions. This meant not confounding it with a series of suggestions (e.g., dealing with needs for the coordination of CDM research activities, the dissemination and diffusion of CDM research results, and the maintenance of CDM data bases) that NIE should consider when initiating and maintaining programmatic research on such priorities. It is not that such "program support" concerns are unimportant; they should not be confused with the basic research issues that demand attention. To affirm their importance, this chapter concludes with a section in which such concerns are listed and briefly discussed.

C. Specifying Recommended Priorities

Each priority is summarized by: (1) a problem statement outlining the nature of the issue and question(s) which should be resolved by research and development activities focused on that priority; (2) the authors' explicit rationale for selection of that priority; and (3) hypotheses that illustrate what research and development activities on this problem should address.

PRIORITY ISSUE 1. This study's social learning theory proposes that there are four types of learning experiences that have a positive influence, and four more that have negative influence, on the individual's acquisition of educational and occupational preferences. How valid are these predictions for the population in general? How valid are they for important target groups such as: women, ethnic minorities, and adults experiencing career changes? Are other influencers more potent than one or more of these?

a. Problem statement. As noted in Chapter II, an educational or occupational preference is an evaluative self-observation generalization that results from learning experiences pertinent to any career task. Since this theory summarized in that chapter focuses on causal relationships between an individual's experiences and their consequences (i.e., products or outcomes such as preferences), empirical evidence substantiating such cause-effect interactions has to be produced for the theory to be supported.

Propositions IA1 through IA4 state that the following four factors positively influence the development of preferences for a course, occupation, or field of work: (i) positive reinforcement for engaging in activities related to one of them, (ii) observation of a valued social model engaging in such activities, (iii) positive reinforcement by a valued model who demonstrates or advocates engaging in such activities, and (iv) exposure to positive words and images associated with a course, occupation, or field of work. On the other hand, Propositions IB1 through IB4 identify four more factors that have a negative impact on such preferences. These include: (v) punishment or lack of positive reinforcement for engaging in such activities, (vi) observation of a model receiving punishment and/or little or no reinforcement for similar actions, (vii) positive reinforcement by a valued model expressing negative opinions about activities or persons involved in a course, occupation, or field of work, and (viii) exposure to negative words and images associated with one of the alternatives. The literature reviewed in Chapter III lends some support to these eight propositions but limitations, including gaps, in the evidence were apparent. More clearcut support is required.

b. Rationale. The authors selected this issue as one of the top priority concerns because it is so central to an empirical test of their social learning theory. As was implied in Chapter I, this theory was developed with the intent that it would produce testable implications. Indeed, eight propositions dealing with educational and occupational preferences can be subject to empirical tests. The interactions between preferences and the independent variables listed above must be validated not only for the general population but also for significant target groups experiencing crucial CDM needs. Research evidence documenting such interactions would provide answers to questions such as: What specific learning experiences will increase the probability that any given course of study, occupation, or field of work will be stated as a preference by women and representatives of specific ethnic

minority groups? Does a pattern of grades received in school indicate that the differential reinforcement of academic marks influences subsequent educational and occupational preferences? At a high school career day, what features about the presentations on each occupation lead students to express interest or disinterest in an occupation?

c. Illustrative hypotheses. On pages 31-34 of Chapter II, eight hypotheses, one for each of the propositions discussed above, are listed as illustrations of testable predictions stemming from this theory. Additional examples seem unnecessary.

PRIORITY ISSUE 2. The social learning theory also postulates that six types of learning conditions and events influence the individual's acquisition of CDM-related cognitive and performance skills and emotional responses associated with those skills. Once again, are these predictions valid for the population in general? Do they hold for target groups such as women, ethnic minorities, and persons making mid-career changes? Are other influencers more powerful than these?

a. Problem statement. A second construct central to this theory is the TAS, task approach skill. This construct is operationized by skills such as those involved in career planning, self-observing, goal setting, information seeking, using decision-making methods, and using mediating and thought processes. In Chapter II, Propositions IIA1 through IIA3 and IIB1 through IIB3 stipulate that the following three factors will positively influence the development of such skills and emotional responses related to them: (i) positive reinforcement for performing such responses, (ii) observation of a valued social model engaging in those responses, and (iii) access to people and other resources that provide information facilitating the learning and consistent performance of those responses. The remaining three will negatively influence such learning: (iv) punishment or lack of positive reinforcement for performing such behaviors, (v) observation of a social model receiving punishment and/or little or no reinforcement for similar responses, and (vi) little or no access to people and other resources with the necessary information.

b. Rationale. Since the literature reviewed for and summarized in Chapter III provides only partial support for these propositions, research focused on them is required. The authors' reasons for choosing this issue as one of their high priority recommendations is the same as that stated for the preceding issue. Research evidence on the interactions of the above six independent variables and CDM skills and feelings will not only test an important second part of this study's theory, it will also answer pertinent questions such as: What types of learning experiences cause people to develop the skills and feelings by which they want to and are able to expose themselves to a greater number of educational or occupational alternatives in contrast to limiting the alternatives they explore? To what extent does schooling punish or not positively reinforce students for developing their CDM skills? How do individuals best gain: knowledge about the options available, how to use predictive data, ways of anticipating contingencies that might affect plans, and techniques for "putting it all together" in order to set goals and develop plans?

c. Illustrative hypotheses. Since example hypotheses for this are provided on pages 35-37, no further statements will be listed here.

PRIORITY ISSUE 3. An individual's actual entry into or avoidance of an educational or occupational option is predicted by this study's theory to be a function of at least five types of factors. The same three questions posited for Issues 1 and 2 need to be explored relevant to this prediction: Is it valid for the general population? For selected target groups? Are other factors more influential?

a. Problem statement. Propositions IIIA1 through IIIA3 of the social learning theory focus on factors that account for actual selection of a course of study, a training program, or an occupation, as well as entry into such occupations. The three positive influencers are: (i) recently expressing a preference for that option; (ii) exposure to educational or employment opportunities leading to that option; and (iii) a close fit between one's skills and the requirements of that option. In contrast, Propositions IIIB1 and IIIB2 stress two events that tend to influence individuals to shy away from an educational or occupational option. These entail: (iv) excessive preparation costs compared to predicted future economic, social, and personal rewards related to that option; and (v) inaccessibility of minimum resources necessary to pursue that option.

b. Rationale. These propositions round out the third and final area of predictions stemming from the social learning theory of CDM. Therefore, a full-fledged test of this theory also must investigate hypotheses derived from these propositions. This is the reason this issue was the third theory-specific priority selected by the authors. Research tailored to this issue will provide responses to questions such as: Are there patterns of learning experiences that characterize people who are employed in each occupation? To what extent does the quality of the relationship between a child and her/his same-sexed parent influence the degree to which the child selects the same occupation as that parent? How do the occupational choices of an individual's siblings, parents, relatives, and friends affect her/his selection of the same or different occupations?

c. Illustrative hypotheses. Examples listed on pages 37-39 seem sufficient for illustrative purposes at this point.

PRIORITY ISSUE 4. The social learning theory of CDM stresses the significant role that planned and unplanned environmental (e.g., social, cultural, economic, or political) conditions and events play as "input" influencers of career decisions. What are the social and cultural barriers and constraints that inhibit the CDM of individuals in general, as well as the CDM of persons in important target groups such as: women, ethnic minorities, and adults undergoing mid-career changes? What are the facilitators? How can these constraints be removed, thus facilitating CDM that benefits both the individual and society? How can the facilitators be reinforced?

a. Problem statement. The "system" employs many policies and procedures and supports many images and myths which result in certain educational and occupational options being readily accessible to some individuals and groups, while being inaccessible to others. The same factor that constrains one individual or group may be facilitative for another. Research is needed to determine the effectiveness of interventions designed to provide more open access to all, so that options are not a function of genetic and/or environmental limitations and so that individuals may select rather than be selected by the system.

An individual has the freedom over her/his CDM only to the extent that s/he can control the influence of environmental factors. Sometimes such conditions and events are unplanned so that no preparation on the part of the individual decision maker is possible and the range of decision alternatives is controlled by these forces external to the individual. In other situations, there are predictable factors that no one person can change or control in any way. In such settings, the decision alternative are limited by these forces that curtail individual freedom and produce feelings of powerlessness.

A significant category of such planned and chance factors entails those which are imbedded in the social and cultural environment in which the individual grows up and currently exists. Examples of this category of influencers include: (i) factors involved with a person's socioeconomic status which limit the number and nature of the social role models to which s/he has access, (ii) controls exerted by incumbents of certain occupations so that the aspirant's freedom is curtailed by the inaccessibility of necessary educational and occupational information (e.g., experiences that help career decision makers acquire a feel for what an occupational structure and a specific job are really like), (iii) sex role stereotypes that are reflected in occupational materials or exclude certain people from identifiable training or job possibilities, (iv) racial stereotypes and perceptions held by members of ethnic minority groups as reflected in national policies and through discriminatory policies and subtle practices of major businesses and industries. The effects social and cultural constraints and facilitators have on CDM need to be documented so that those that are modifiable can be changed to benefit both individual and societal outcomes.

b. Rationale. The pervasive, subtle, and powerful impact of social and cultural influencers on CDM is undeniable. The authors recognize this significance and believe that many of these constraints can be controlled through group and institutional interventions. For those social barriers that are not so amenable to change, the authors believe that the freedom of the individual decision maker can be increased if s/he is helped to be aware of these constraints and to function effectively in spite of them.

c. Illustrative hypothesis. Employers engaged in a training program that promotes attitude and behavior change focused on helping them both eliminate recruitment and hiring policies and practices that are based on sex stereotypes as well as take steps to facilitate the employment and development of women will be more likely to make modifications than will employers not exposed to that program. The program will focus on modifications such as: increasing the number of part-time jobs available for women; establishing more flexible work hours; individualizing physical strength requirements for jobs by taking more of an individualized approach focusing on each woman's abilities; and re-educating personnel staff who believe women require more sick leave than do men, have higher turn-over rates than men do, and are not suited for certain jobs because of conflict with home and family duties.

PRIORITY ISSUE 5. What are the economic and political barriers and constraints that inhibit the CDM of individuals in general and of the target group members noted in Issue 4? What are the facilitators? How can the effects of these inhibitors be reduced so that CDM can be facilitated to benefit both the individual and society? How can the facilitators be reinforced?

a. Problem statement. The problem outlined for Issue 4 is similar to that which results when the impediments and facilitators are of an economic and political, rather than a social and cultural, nature. Perhaps this category of planned and unplanned environmental influencers contains more explicit, and less subtle, variables. However, their impact on CDM seems no less powerful.

Example factors for this category include: (i) labor laws, licensing practices, certification requirements, and union rules that eliminate certain applicants from education, training, or job options; (ii) relatively unexpected and uncontrollable economic trends that decrease certain job opportunities and increase unemployment rates such as during times of recession or depression; (iii) pricing mechanisms that produce high training costs so that certain training applicants are excluded; (iv) unavailability of labor market information so that the career decider must make selections on inadequate data; (v) the similar inaccessibility of information on the costs (e.g., foregone earnings) and benefits of education and training; and (vi) the use of leisure time and the impact this has on CDM as both a human capital investment factor and a consumption variable.

b. Rationale. The authors' reasons for selecting this issue are essentially the same as those stated for Issue 4: if economic and political barriers and supports can be identified for people in general, and target groups in particular, several types of interventions could be researched. One could explore alternative ways to remove such impediments, while another could try to help the career decision maker "make it" in spite of barriers. Still another could investigate strategies for making the supports even more facilitating than they currently are.

c. Illustrative hypothesis. Federal legislators and their staff members receiving case study data illustrating how the implementation of the Guaranteed Student Loan Program funded under the Higher Education Act of 1965, and its amendments, has produced both positive and negative effects on the CDM preferences and selection of college students will emit more behaviors aimed at remediating the negative effects than will those receiving either no such information or general letters from their constituents complaining about these effects. Under this Program students in certain public, private, non-profit, or proprietary (for profit) schools are eligible for financial support. However, the federal government has not been able to implement rigorous standards and procedures for determining institutional eligibility. In turn, some students have suffered because they have made career decisions to attend institutions about which they know very little. For example, they lacked information on those institutions' educational programs, facilities, faculty, and student body.

PRIORITY ISSUE 6. What are the educational conditions and events that constrain the CDM of individuals in general and of the target group members listed in Issue 4? What are the factors that support CDM? How can these conditions and events be modified to improve each individual's CDM so that s/he and society benefit?

a. Problem statement. Issues 4 and 5 have focused on the impact that social, cultural, economic, and political barriers and supports have on CDM. These are difficult to separate from the category of planned and unplanned environmental factors addressed by the above issue. School, training program, college and university variables are separately identified here only to highlight the important role that educational institutions play on CDM. Research conducted on such variables would investigate the CDM impact of: (i) tracking systems that limit an individual's options in pre-school as well as in elementary and secondary schools; (ii) teacher and counselor preferences, values, and CDM skills that shape students' decisions; (iii) tests and measurement procedures that differentially help students learn about their own characteristics and their relationship to educational and occupational options; (iv) the lack of uniformity and the lowering of local, state, and

national standards for education and training so that students graduate without achieving minimal standards of competence; (v) aspects of school organization, climate, and atmosphere that support as well as those that do not support student acquisition and practice of decision-making skills; (vi) special interest groups that promote adoption of certain technical media and procedures in CDM programs that might not be in the best interests of those students; (vii) positive and negative effects that compulsory schooling regulations have on CDM; (viii) adequate and inadequate methods for helping students learn and use information about the costs and benefits of education and training, about what occupations are really like, and about current educational and occupational opportunity structures; and (ix) adequate and inadequate knowledge of placements following training programs.

b. Rationale. The authors list this issue as one of their top priorities for reasons that are the same as those listed above for Issues 4 and 5. An example of an educational factor that constrains some persons and facilitates others is the organization of many high schools around the entrance requirements of the state universities. This facilitates the preference, decision skills, and entry of students with specific sets of characteristics but may inhibit a similar line of development among students with different characteristics. Such requirements may also inhibit these students' entry into other training routes where different sets of entry skills are important. The school organization and curriculum tend to select those individuals who may enter the university. Options are open to some, but not to others. Systematic changes should be implemented and should be evaluated for their effectiveness in reducing such discrepancies among individuals' options.

c. Illustrative hypothesis. School and college administrators who participate in workshops aimed at getting them to develop and implement action plans for having their staff members implement procedures aimed at improved facilitation of student CDM activities will be more likely to promote such changes in their institutions than will administrators left to their own resources. The workshops and the plans will emphasize outcomes such as: (i) increasing the amount and nature of information educational institutions collect concerning the placements of students that they have trained so that such data can help the institutions improve the CDM options and skills of current and future trainees; (ii) eliminating the use of interest inventories validated on women who entered traditionally "feminine" occupations; (3) improving career counseling for black youth by using counselors and techniques more knowledgeable and closely tailored to the unique needs and characteristics of these students; and (iv) extending both the training students receive in decision making skills as well as the number and type of opportunities they have for participating in making institutional decisions that influence their careers.

PRIORITY ISSUE 7. The social learning theory of CDM emphasizes not only the impact that past and current conditions and events have on CDM, but also the effects the individual's awareness of future conditions (short- and long-term) can have on her/his career preferences, skills, feelings, selections, and subsequent actions. How can future projections be most efficiently and accurately developed for the individual to use in her/his CDM? What are the most effective methods for communicating these projections both to career deciders and to social institutions that influence CDM.

a. Problem statement. If it is true that the future will be increasingly unpredictable and career decisions made within one set of future conditions become completely inappropriate in another, it can be hypothesized that the individual's CDM would be improved if s/he knew what her/his life would be like in several possible futures. This statement begs the question about whether plausible, alternate future projections can be made accurately and efficiently. To provide career deciders with futures information necessitates that procedures be established for monitoring current trends, that strategies are available or can be developed for projecting future trends with the emphasis on CDM, that effective methods can be implemented to disseminate such information to CD makers so that the dynamism of change is reflected, and that feedback mechanisms can be employed to improve the above information collection and utilization process. Futures studies constitute a virgin area for CDM research and development.

b. Rationale. The authors rank this issue as a priority concern not just because it has been relatively untouched by previous CDM research but because of their belief that career decisions depend heavily on individuals' having access to accurate personal and environmental data. Information that assists proactive career planning is usually inadequate and frequently involved. However, this area of research and development will not be easily mastered. One set of questions that needs to be investigated entails methods for making projections: (i) What methods are available for predicting future conditions and events related to CDM? (ii) Which ones can be developed? and (iii) Are multiple production strategies from which data are correlated to identify core elements more effective than single methods? Another set deals with approaches for judging the quality of projections produced by these methods: (iv) What criteria can be used to assess the adequacy of alternate projections? (v) What design and procedures will be necessary in order to employ these criteria? (vi) How good are the alternative methods when they are assessed using these criteria and procedures? A third group of questions requires answers about the content of projections. Responses to these kinds of concerns will shape what goes into the alternate futures that are predicted: (vii) Are there clusters of variables that remain relatively unchanged when conditions evolve? (viii) How will goals change in the future? (ix) What will future educational and occupational reinforcements be like? (x) What critical career decision points and influencers are projected? (xi) What values and value systems need to be developed if individual and societal benefits are to be balanced in future? A final set of questions relate to the dissemination, presentation, and impact evaluation of projections to both career deciders and the institutions that influence career options and selections. Examples in this category include: (xii) How can organizations be impacted to use such projections so that individual CDM and societal needs can be met? (xiii) What are the most effective strategies for helping career deciders get in touch with their emotional responses associated with the projected futures as well as develop and internalize salient responses related to them? (xiv) What sorts of contextual descriptions are most meaningful to individuals of different ability and motivation levels? (xv) If alternate projections are available, how many such descriptions can persons at different ability levels consider? (xvi) What are the individual and societal effects of providing information on plausible alternate futures to CD makers? (xvii) Are there skills that facilitate individuals' use of these projections?

c. Illustrative hypothesis. Junior and senior high school students who receive a group guidance program in which projections of alternate futures are presented at a computer terminal will be more likely to use this information in the career decisions they make over the next 12 months than will students who are given a similar program using a handbook on future career alternatives or students who are provided with no special assistance.

PRIORITY ISSUE 8. As stated in Issues 1 through 3, this theory concentrates on three consequences (or outcomes) of CDM learning experiences: preferences, cognitive and performance skills and related emotional responses, and selections and subsequent actions. What CDM skills can be identified and substantiated?

a. Problem statement. Issue 2 deals with the impact of personal and environmental influencers on the individual's CDM skills. However, it does not attend to the specific nature of those skills. This study's literature review revealed that little empirical evidence is available on either comprehensive models of CDM or specific CDM skills and competencies and the career planning, development, selection, and action tasks to which they relate. Most of the available information is based on expert opinion using generalizations adapted from studies of industrial, political, and military problem solving. Many CDM references seem to imply that there is a model of CDM rather than alternate approaches that might be efficacious for different decision makers. The model that is frequently recommended is a derivative of the scientific method and thus tends to emphasize a highly rational, logical, step-by-step approach to decision making. Not everyone agrees that career decisions are, or should be, made that way. Descriptive research is needed to investigate these speculations.

b. Rationale. The authors based their selection of this issue on its critical importance for continued direct interventions in the whole CDM area. It relates to skills, the second of three constructs around which this study's social learning theory is organized. As noted above, resolution of this issue is central to Priority Issue 2. Similarly, it is fundamental to Issue 9 which follows. Research activities on this concern must address questions such as these: (i) Do CDM skills differ from decision-making skills appropriate for tasks in areas other than career planning, development, and selection? (ii) What model or models of CDM skills characterize successfully functioning career decision makers? (iii) Are there different types of career decision makers? (iv) What criteria can be used to identify and assess such individuals? and (v) Are different sets of skills functional for different target groups (defined by variables such as age, sex, ethnic group, and socioeconomic status)? It is apparent that answers to such questions will depend on the degree to which internal (based on personal values) and external (based on social, political, and economic mores) criteria can be established and accepted for assessing "successful" decisions and/or wise decision making. Operational strategies and identifiable characteristics of successful decision makers must be explored.

c. Illustrative hypothesis. During a six-month follow-up period, counselors who viewed filmed examples of a career decision maker arriving at a decision using four alternate decision making approaches (each comprised of a different set of CDM skills) will plan and implement more interventions aimed at tailoring their interventions to career decision makers' needs, characteristics, and preferred methods than will similar counselors not receiving in-service training on alternate CDM models.

PRIORITY ISSUE 9. If descriptive data collected for Issue 8 substantiate the existence of CDM skills and related responses, prescriptive research should experimentally investigate the impact of direct and indirect interventions aimed at helping the individual acquire, practice, and use such skills and responses. What are the anticipated and side effects of teaching these skills?

a. Problem statement. A basic assumption of the CDM theory proposed here is that decision making skills are learned and can be modified through the application of learning principles. Research and development activities to identify factors influencing the development of these skills and correlated emotional responses are the ones addressed by Priority Issue 2. Like Goal 3 which is summarized on pages 58-60 of Chapter I, Issue 2 proposes that empirical data be collected on how and the extent to which individuals' repertoires of CDM skills can be increased.

The literature reviewed for discussion under Propositions IIA1 through IIA3 in Chapter III indicated that programmatic attempts have been made to help people acquire and practice CDM skills. However, it also accentuated the fact that no significant evaluative research activities have been conducted to provide solid data on the impact of these programs. To fill this gap is the aim of Issue 9.

b. Rationale. The evaluation of skill building programs in the CDM area is a thorny issue. In spite of their initial fear-and-flight inclinations, the authors agreed that this concern cannot be skirted if accountability evidence on the costs and results of such programs will continue to be needed. Indeed, NIE already has affirmed this critical need by funding Martin Katz of the Educational Testing Service (NIE grant NE-G-00-3-0216) to develop and field-test a simulation instrument to assess CDM competence. At this time, the appropriateness of his instrument, Simulated Occupational Choice (SOC), for large scale evaluation studies is still unknown. Either way, if Issue 9 is accepted and pursued, the authors recognize that subsequent work must be completed producing additional instrumentation, developing evaluation designs and procedures employing these techniques, and conducting actual evaluation studies that produce information determining at least the cost-effectiveness of specific programs and perhaps even the cost-efficiency of alternate, comparable approaches.

Such evaluations will answer questions such as: (i) What is the impact on the individual's decisions and what are the consequences of those decisions? (ii) How cost-effective and cost-efficient are programs that attempt to teach such skills? (iii) Can career decisions be assessed on the extent to which a defined decision-making process was utilized and the outcome(s) of the decision was consistent with the desired values? (iv) Can a decision be evaluated on the basis of its outcome only? (v) When used recurrently over a long period of time, can the value of the CDM process itself be evaluated by determining the outcome of its use in comparison with the outcomes of some alternative process? (Outcomes include benefits, costs, and unexpected positive or negative side effects.); (vi) How is performance in simulation instruments such as SOC related to real-life decisions and to human characteristics such as verbal aptitude, socioeconomic status, educational status, age, and sex? and (vii) How can the validity of SOC and other instruments be tested?

c. Illustrative hypothesis. Adults assigned a program using videotape modeling procedures illustrating and teaching CDM skills will score higher on criteria derived from three instruments for assessing CDM skills than will comparable individuals assigned to each of the following treatments presenting the same content: audio-tape dramatization, dramatization via a written booklet, instructional lecture, or programmed printed materials. The instrument will include a simulated problem-solving situation, a self-report checklist of decision making skills, and case histories of real-life decision making.

PRIORITY ISSUE 10. Delving deeper into the school and job performance aspects of Issue 3, what factors influence an individual's satisfaction, success and/or failure in the setting s/he selected to enter? What are the implications of these factors for career selections and subsequent career changes?

a. Problem statement. Issue 3 concentrates on an individual's actual selection, entry into, and performance in an area of educational or occupational choice. Since this study's theory attempts to understand the life-long aspects of CDM, it attends to the activities the individual takes subsequent to selecting, or being selected into, a career option.

The area of job satisfaction, success, and failure recently seems to have taken on major importance as some people seriously consider and pursue alternate life styles that do not place as high a value on paid employment as has been devoted to it in the past. Other individuals seem to make decisions, or even to allow someone else to decide for them, that keep them working for pecuniary and non-pecuniary rewards but do not enhance their low interest levels in their jobs. Descriptive research is needed to synthesize what is currently known about educational and occupational satisfaction, success, and failure; to identify critical personal and environmental influencers that produce those outcomes; and, if undesirable individual and societal results are occurring, to suggest strategies for improving these effects by modifying the influencers that shape them.

b. Rationale. Throughout this study, the authors became increasingly concerned about what they perceived to be the rising tide of career dissatisfaction. They observed this not only for adults considering or implementing mid-career changes but also for young people just initiating their work-related training and actual work histories. They heard and read much of the current speculation on factors that influence people's disenchantment with specific job activities, work in general, and the value of work in total. They recorded in Chapter III, under the review of Proposition IIIA1 through IIIA3 as well as IIIB1 and IIIB2, some of the literature that has addressed this concern. However, they became more convinced that additional research studies focused on key aspects of this issue are necessary, particularly from the perspective of the social learning concepts stated here. Only with that backdrop can studies be conducted to resolve worker and work environment problems that are producing negative effects. For these reasons and knowing they risked overlapping the research questions posed in some of the preceding issues (particularly 3 through 7), the authors decided to present this concern as one of their recommended priorities. They anticipate that such research will answer questions such as: (i) What individual differences are there in the nature and effects of intrinsic and extrinsic work reinforcers? (ii) In what way(s) is job satisfaction, success, and failure related to decision-making skills and the level of commitment to career options preferred and/or selected? (iii) What factors produce changes in work satisfaction, success, and failure? (iv) How does work satisfaction influence life style? (v) What role does satiation with social and material reinforcements have on work boredom? (vi) What interventions should (and can) be made to benefit those people who work in activities that are fundamentally alienating? and (vii) What are the interactions of leisure options/activities and quality of work performance and satisfaction?

c. Illustrative hypothesis. Of those adults in the throes of mid-career changes, those who make explicit their values related to pecuniary and non-

pecuniary career influencers, have identified the work activities and settings with highest probability of delivering those reinforcers, and emit the assertive skills that can modify most of the environmental factors to facilitate their career performance will be more likely to experience subsequent job success and satisfaction than will those persons incapable of emitting these three types of behavior.

D. Recommending Strategies for Supporting a Research Program on Such Priorities

Most of the research and development that has been done in the area of CDM has taken place at universities. Information about results of such investigations has been published in professional journals where it is generally consumed only by other researchers. Funding for such research usually has come from federal or state sources on an intermittent basis and the funded studies often have been disjointed. The following recommendations suggest ways in which an NIE-supported research and development program on CDM can avoid some of the problems that have plagued this area. It is assumed that such a systematically planned and monitored program will be designed around priority issues like, not necessarily the same as, those outlined in the preceding section.

1. Funds should be made available to teams of researchers and developers to carry out programmatic efforts over substantial periods of time. The Index of previous CDM research data sets described in the next chapter should be used both by NIE in selecting which efforts to initiate and then by the selected researchers and developers themselves. This will require that NIE take the necessary steps to insure that the Index and the 10 data sets AIR collected for NIE be maintained, continually updated, and made available to all researchers wishing to conduct secondary analyses of the data in these sets. More specific recommendations for accomplishing these purposes are presented in Chapter VI.

2. Priority in research and development funding should be assigned to studies which in their design consider the three categories of CDM variables outlined in Chapter II: factors that influence the nature of career selections, outcomes of interactions among influencers, and specific outcomes relevant to career decisions. These variables should be derived from some basic conceptual theory, not just its components. As the literature reviewed in Chapter III has shown, the potential generalizability of many studies in CDM is limited because they are based on isolated factors in a total process.

3. A research and funding agency like NIE should insure that the professional-practitioner community as well as the relevant decision makers from the power structure help set its CDM research and development priorities that will provide the framework for: (a) priority areas for unsolicited grant proposals and (b) RFP contracts. Priorities must be tailored to the needs and characteristics of target populations toward which the research and development efforts are directed (e.g., program recipients receiving CDM services or members of the system providing and controlling such services).

4. Proposals for innovative programs to improve human CDM should not be funded unless they are accompanied by strong research designs that include strategies for evaluating their effects in terms of both the CDM process and its products. The authors' literature review convinced them that innovative interventions are frequently proposed in the absence of knowledge about their effects (short- or long-term) or any expressed desire to collect the necessary

data on such effects. While innovations are to be applauded, there has to be more comprehensive evaluative research on their merits. This review also suggested that most of the available CDM studies are of a purely correlational nature and others suffer from serious flaws in design and execution.

5. Researchers should be encouraged to look for and report differential effects of treatments both by type of treatment and characteristics of target populations. The ultimate aim of such research is to be able to describe the effect of a specific treatment on individuals. Much of the available research output on CDM is stated in highly general terms as if all treatments affected all subjects equally. This trend is not only misleading but it also makes implementation of intervention strategies difficult.

6. In addition, replication studies should be conducted to establish the validity of such treatment programs in a variety of contexts. Such replications should be especially directed at those that have reached a fairly high level of acceptance and effectiveness. This kind of study suggests the collection of substantial amounts of demographic data and the use of comparative designs in different contexts. For various reasons, few such replication studies are to be found in the literature. The establishment of the validity of current treatment programs is thus very weak.

7. Multivariate statistical analyses should be designed for use in CDM studies and studies using them should be supported. Statistical designs have tended to be devised or selected on the basis of the type of data available. The over- or under-interpretation of results is thus always a danger. Designs which take into account CDM input influencers, mediating processes, and output factors such as those outlined in Chapter II will need to make use of much more powerful statistical procedures. At the same time, designs employing case studies, in which the sample size may be limited to an N of 1, should be supported only if they are carried out within the framework of some overall conceptual system or theoretical framework.

8. When comparative studies of the effects of one or more treatment programs are conducted, control groups should be specified. Such studies are particularly susceptible to Hawthorne effects and designs should insure that support for a particular point of view does not confound the findings.

9. All NIE projects funded in the CDM area should be asked to make budget and staff commitments to cooperative planning and problem-solving sessions scheduled for all project leaders every four months. In effect, a "consortium" of CDM researchers and developers working on NIE funds would be established. Perhaps one contracting agency should share with NIE staff members the responsibility of convening and conducting such sessions.

10. Since this study's literature review suggested that there are many problems related to research publication and dissemination of information about CDM, funding agencies like NIE should demand that CDM studies have clearly designed dissemination plans and schedules to which they are contractually committed through budget line items. Included on every review panel for grant and contract proposals should be a practitioner and others who have dissemination standards and guidelines in mind and can make suggestions at the prospectus stage and even at the proposal stage, if possible. Also, if feasible, such panels should be used during the implementation of these pro-

jects. Also, the agencies should require that plans be implemented and reports be written in "good, plain English" reflecting an interdisciplinary approach that can be understood and utilized by persons from various disciplines. Whether the simplified writing should be produced by project personnel or expert writers must be resolved.

11. In addition to the above application of more rigorous standards for publication, a central clearinghouse for the accumulation and dissemination of CDM findings should be established. Perhaps NIE staff will be able to initiate and maintain such a brokerage more efficiently than will any of the existing ERIC installations. A series of regular reviews of such findings produced on a regular, commissioned basis would be useful. The clearinghouse should facilitate a two-way flow of information (with quick replies) on CDM research and development efforts.

12. The above clearinghouse should develop a compendium of available CDM-related instruments, their underlying constructs, and the interpretations that have been constructed for use by researchers and practitioners. Most studies in the area of CDM are of limited use because the constructs and instruments used are not comparable across studies. This makes it extremely difficult for researchers and practitioners to choose appropriate instruments for program construction and testing.

Chapter VI

DATA RESOURCES FOR CDM RESEARCH

Steven M. Jung

A. Purpose

The previous chapter has outlined the range and importance of unanswered questions in the area of CDM. Research to contribute partial answers to such questions will no doubt be carried out at numerous sites and under numerous sponsorships in the future. Unfortunately, there is a common tendency under such circumstances to gather new data specific to each new research effort. A major consideration for new research efforts should always be data produced by similar research efforts in the past. Even though the existing data may not be exactly suitable to the investigation of new hypotheses, modern data analysis techniques offer opportunities for potentially productive pilot studies and other reexamination.

A prerequisite for the use of existing data is some mechanism for sharing among career researchers an awareness of and an opportunity to explore these data. As part of the present project, an attempt was made to compile a comprehensive international index of data sets which are potentially relevant to careers research and are routinely available for acquisition and use by careers researchers. This Careers Research Data Set Index (CRDSI) was supplemented by the actual acquisition of ten selected data sets to comprise a Careers Research Data Bank (CRDB) for the NIE. The staff of NIE's Career Education Task Force will disseminate information to interested researchers about the CRDSI and will make available copies of the CRDB data sets and associated documentation. This chapter describes the CRDSI and the CRDB and the methods used to construct them.

1. The Careers Research Data Set Index (CRDSI)

The CRDSI is an on-line computer-based index containing information about 95 separate machine-readable data sets. The sets are listed in Table 4. Available information includes: name; date of initial collection; current location of data; name, title, and phone number of contact person at current location; name of responsible investigator(s) for the research program that generated the data; number of publications available; an access category describing the conditions of access to the data set; characteristics of the study sample, including number of subjects, number of observations on these subjects, country and region (within the USA) of residence, age, educational level, sex, race, and religion; an abstract; condition of the data, including tape format, availability of codebook and/or questionnaire, and fee; and categories of career decisions and decision influencers about which data were collected.

The Index permits keyword searches to be performed using various aspects of the above information; procedures for carrying out such searches are described in detail in Appendix H to this report. The index also permits generation of hard copy printouts based on any aspect or combination of aspects of the above information. To date, printouts have been generated for categories of career decisions and categories of decision influencers about which data were collected.

2. The Careers Research Data Bank (CRDB)

The CRDB is composed of ten data sets (listed in Table 5) selected from among the 95 included in the CRDSI. The selection process, to be described later, was designed to insure that the CRDB data sets possess high potential for the kinds of reexamination and secondary analysis that have been recommended in the previous chapter. All data sets reside on magnetic computer tape in a standard recording mode (9 track, 1600 BPI density, EBCDIC character set, odd parity) with IBM standard labels. Standardized documentation for all sets includes codebooks and marginal frequency distributions where available.

B. Methods

1. Identification of Potentially Relevant CDM Research Data Sets

In carrying out this task, the authors used three separate search strategies. These will be covered in turn.

Identification of career researchers. In implementing this search strategy, the National Advisory Panel was asked to identify individual researchers who were either involved with or knowledgeable about CDM research efforts. Thirty-nine individuals were identified; they are listed in Appendix D.

Identification of career research programs. Institutional career research programs were identified through this study's literature search, the consultants mentioned above, and the NIE contract monitor. Twenty programs were identified; they are listed in Appendix E.

Identification of data archives holding potentially useful CDM research data. Such data archives were located by reference to a book by Vivian Sessions entitled Directory of Data Bases in the Social and Behavioral Sciences, and to the National Technical Information Service Directory of Computerized Data Files and Related Software 1974. In addition, a number of archives were nominated by a staff member who attended an August 1974 session on data archives at the International Congress of Sociology in Toronto, Canada. Appendix F lists the 32 archives so identified.

Although it may be seen that there was some overlap among the above sources, multiple letters were sent whenever it was considered possible that institutional communication within sources might be less than perfect. This resulted in a total of 112 initial search letters sent out between October 1974 and February 1975. The basic search letter was recorded on an IBM MTST; adaptations were attempted to make each letter as appropriate to individuals or institutions as possible.

2. Initial Decisions for Identification of Data Sets

It was initially decided to adopt a very broad search strategy and then to narrow it down in successive steps to identify (a) data sets appropriate for the Careers Research Data Set Index, and (b) data sets appropriate for consideration

as acquisitions for NIE. To do this, project staff established 12 criterion "dimensions" which could range from "totally unrestricted" along a quantitative continuum to "highly restricted." Very limited restrictions were to be imposed at the original search stage, with tighter and tighter restrictions to be imposed as consideration for inclusion was narrowed first to the CRDSI and second to NIE's CRDB. The preliminary criterion dimensions, along with the levels set for the initial search, are listed in Table 1.

TABLE 1
Criterion Dimensions for
Selection of Career Decision Making Research Data Sets
(Showing Initial Search Levels)

1. Age--unrestricted
 2. Form--Punched card (80 column) or magnetic computer tape (any form)
 3. Country of origin--unrestricted
 4. Survey units--individual persons
 5. Sample adequacy--unrestricted
 6. Size--unrestricted
 7. Public access--unrestricted
 8. Presence of career variables--choice of job, occupation, vocational training, apprenticeship training, military enlistment, academic training, college major
 9. Presence of influencer variables--unrestricted
 10. Cost of acquisition--unrestricted
 11. Usefulness for follow-up studies--unrestricted
 12. Comprehensiveness in terms of CDM variables--unrestricted
3. Preliminary Identification of Data Sets for the CRDSI

It was decided that the CRDSI should contain virtually all of the data sets (as this term was finally defined) identified in the initial search except those which are not in the public domain or which contain only information on selection of a particular college. This resulted in a set of criterion dimensions listed in Table 2.

TABLE 2
Criterion Dimensions for
Selection of Career Decision Making Research Data Sets
(Showing Levels for CRDSI)

1. Age--unrestricted
2. Form--punched card (80 column) or magnetic computer tape (any form)
3. Country of origin--unrestricted
4. Survey units--individual persons
5. Sample adequacy--unrestricted
6. Size--unrestricted
7. Public access--in the public domain
8. Presence of career variables--choice of job, occupation, vocational training, apprenticeship training, military enlistment, academic training, college major
9. Presence of influencer variables--unrestricted
10. Cost of acquisition--unrestricted
11. Usefulness for follow-up studies--unrestricted
12. Comprehensiveness in terms of CDM variables--unrestricted

The first restriction was made for obvious practical reasons. It made no sense to list data sets which were not available to other CDM researchers. The second restriction was made for practical reasons which are not as obvious. It was estimated that including "choice of a particular college" would increase the number of potentially relevant data sets by an exponential factor of two. Thus, while selection of college is obviously an important decision, it was necessary to restrict the Index to inclusion of data sets more closely related to occupational choice.

A major problem was to arrive at a suitable definition of data "set." At the trivial level, there was a question about multiple tape files. For example, if a data set consists of five tape files (reels), does it then represent five "sets?" That question was resolved very easily with an arbitrary no. A much more thorny question involved large scale longitudinal data gathering programs which generate mountains of data on thousands of persons. For example, the Cooperative Institutional Research Program (CIRP) of the American Council on Education (ACE) has eight different longitudinal studies plus annual freshman surveys going back over ten years. Did each longitudinal study represent a data "set?" Did an annual freshman survey represent a "set?" A probable answer was yes. But the questions got even more complex. Suppose from the 1974 freshman survey, CIRP generated three "use" files, consisting of various samples of variables and individual respondents. Now, did each of these new files constitute a data "set?" If so, the number of potential data sets for the CRDSI would have escalated rapidly. If not, listed as one "set" would be a massive amount of data on thousands of individuals. Some resolution of this question was necessary before the next stage of identifying data sets for the CRDSI and for NIE's CRDB could be initiated.

In consultation with the project monitor, it was decided to define a "data set" as a complete or partial set of data (test scores, biographical information, follow-up information, etc.) on a relatively homogeneous group of individuals who were originally tested or interviewed at the same time. This definition implied

that large on-going research programs will indeed have multiple data sets, and that "use files," or subsets of selected variables on samples of the original subjects, were included, if they were regularly available to users on a non-idiosyncratic basis. For example, under this definition each of the eight longitudinal data files of CIRP/ACE were included in the Index.

Another problem which had to be resolved involved the practical accessibility of data sets. This problem involved data sets which were substantially complete and in the public domain but were not currently set up for routine public access. For example, the data from the follow-up study of the Oakland Public Schools graduating class of 1965 resided on computer tape and were potentially available upon arrangement with Oakland school officials. However, the data did not meet even minimal standards of documentation and format to make them appropriate for public use. Should such data sets be referenced in the Index? If so, should project resources be used to put together a potentially useful data set? In consultation with NIE, both questions were decided in the affirmative.

4. Identification of Data Sets for CRDSI

Replies from initial search letters and follow-up correspondence and phone calls resulted in the identification of the 95 data sets listed in Table 4. The data sets are listed alphabetically by city of source person or organization.

5. Processing Data Sets for Inclusion in CRDSI

Information about each accepted data set was collected and processed for remote entry onto a disc storage device at the Stanford University Computation Center. This remote entry/disc storage system allowed project staff to easily edit and update the data set files as new replies came in from search letters or from follow-up requests for more information. Complete processing instructions are included in Appendix G. The instructions contain complete explanations of the CRDSI access categories and coding schemes.

6. Creating the CRDSI

The CRDSI was created using the Stanford Public Information Retrieval System (SPIRES) at the Stanford University Computation Center. SPIRES allows great flexibility in generating both on-line access and printed indices which allow direct referencing of data sets by the studied sample, by aspects of the variables collected on this sample, or by a combination of such characteristics and aspects. Complete procedures for using and updating the CRDSI/SPIRES system are included as Appendix H. To date, printed indices have been generated for categories of career decisions and categories of decision influencers about which data were collected.

7. Identification of Data Sets for CRDB

As mentioned previously, it was planned to tighten the criteria for acquisition along the dimensions listed in Tables 1 and 2. The levels of restriction which were adopted are listed in Table 3.

TABLE 3
Criterion Dimensions for
Selection of Career Decision Making Research Data Sets
(Showing Acquisition Search Levels)

1. Age--initial data collection begun within last fifteen years
2. Form--magnetic computer tape (BCD, ASCII, or EBCDIC recording mode)
3. Country of origin--unrestricted, but documentation in English
4. Survey units--individual persons
5. Sample adequacy--representative of a larger population, probability sample if possible
6. Size--over 1,000 cases
7. Public access--essential
8. Presence of career variables--choice of job, occupation, vocational training, apprenticeship training, military enlistment, academic training, college major
9. Presence of influencer variables--essential
10. Cost of acquisition--less than \$1,000
11. Usefulness for follow-up studies--essential
12. Comprehensiveness in terms of CDM variables--essential

8. Selection, Acquisition, and Standardization of CRDB Data Sets

The criteria listed above, after acceptance by the NIE contract monitor, were applied to the 95 data sets in the CRDSI. The ten sets that were felt to best fit the criteria were identified. Again after approval by the NIE contract monitor, they were acquired from the original source and placed into a common magnetic tape format for transmission to NIE. The ten CRDB data sets are listed in Table 5. All tape volumes were created on an IBM 360/65 at Optimum Systems, Incorporated, Santa Clara, California. The volumes are labelled CRDB01 - CRDB10, using IBM standard labels: since volume 10 (the SCOPE data) contained four separate tape reels, the three additional reels were labelled CRDB11, 12, and 13. The following recording technique was used: 9 track, 1600 BPI density, EBCDIC character set, odd parity. A convention of one logical record per case was followed; for cases recorded in multiple-card format, the 80 character logical records were combined without compression to make them conform to this convention. Standard documentation packages were created for all volumes, including tape layouts, codebooks, marginal frequency distributions (where available), and printouts which contain the contents of the tape labels and listings of the first and last five records on each volume.

C. Recommendations for Utilization

For a number of practical reasons secondary reanalyses of existing data are rarely performed: a few reasons are mentioned here. In general, it is difficult for researchers to obtain support for such analyses from conventional funding sources.

More often than not, the professional "incentives" among researchers (e.g., peer recognition, journal publications, elevation in rank) accrue to the initiator, the theoretician, the responsible investigator of large scale data collection efforts. The occasional researcher who does attempt secondary reanalyses is often frustrated by lack of cooperation at the initial source, lack of documentation sufficient to permit adequate interpretation of analysis results, and multiple uncontrolled rival hypotheses. The two data resource products of this project, the CRDSI and the CRDB, will not eliminate these problems. If used wisely, however, they can alleviate some of them.

NIE, as a major funding source, can set policies which encourage consideration of secondary reanalysis as a first step in any systematic CDM research efforts. It should do so. The CRDSI should be a useful aid in this respect, both for researchers who are undertaking these activities and for the NIE monitors who are responsible for overseeing their work.

Meaningful secondary reanalyses will generally take the form of pilot studies, cross-validations, and utilizations of previously unused data analysis techniques. NIE should fund several meaningful reanalyses of national data resources, such as those contained in the CRDB. Apart from their substantive impact, these studies should be performed as models of appropriate reanalysis techniques and procedures for the benefit of other researchers. In reports of these studies, as much attention should be given to explaining the methodology used as in describing the results and conclusions.

Because evidence of accessibility and at least minimal documentation was required before a data set was included in the CRDSI, NIE may assume that listed data sets represent good candidates for secondary reanalysis. NIE should actively disseminate information about the CRDSI and should take steps to ensure that it is periodically updated to include information on new data sets or data sets which were inadvertently overlooked in the initial search. The on-line nature of the Index will facilitate this process.

Because the CRDB data sets are comprehensive and possess generally excellent documentation packages, NIE should give them preference for in-house and contracted reanalyses such as those suggested above. NIE should also actively disseminate information about their availability and should supply them routinely and at low cost to interested researchers.

Finally, all careers researchers would do well to honor in practice this observation by Caleb Calton, an 18th century English clergyman.

If we can advance propositions both true and new, these are our own by right of discovery; and if we can repeat what is old, more briefly and brightly than others, this also becomes our own.

TABLE 4
Data Sets Accepted for Careers Research Data Set Index
Arranged by Title Within Source Location

Belgian Archives for the Social Sciences, Belgium

1. The Orientation of Students at the End of the Tenth Grade in France

Center for the Research and Development in Higher Education, University of California, Berkeley

1. Public and Proprietary Vocational Training: A Study of Effectiveness, students entering occupational programs
2. Public and Proprietary Vocational Training: A Study of effectiveness, students about to graduate from occupational programs
3. Public and proprietary Vocational Training: A Study of Effectiveness, graduates from occupational programs

International Data Library and Reference Service, Survey Research Center, University of California, Berkeley

1. High School Students and Their Plans, USA
2. Undergraduate and Graduate Students in Medicine, Exact Sciences, and Economics, Argentina
3. Law School Students, Brazil
4. Attitudes and Opinions Toward Education and Work, Chile
5. Career Values in Brazil and Mexico
6. University Students - Values, Vocational and Political Orientations, International
7. The Making of a Teacher, Trinidad and Tobago, USA
8. Secondary School Students in Ghana and Ivory Coast
9. School to College - Opportunities for Post High School Education, USA
10. Attitudes of High School Girls Toward Professionalism, Brazil
11. Family and Education in Rio de Janeiro, Brazil, Brazil

**Cooperative Institutional Research Program, American Council on Education
and University of California at Los Angeles, Los Angeles**

1. Freshman Survey Data, 1966-73 (numerous files)
2. 1965 and 1971 Follow-up of Freshman Class of 1961
3. 1971 Follow-up of Freshman Class of 1961
4. 1967 Follow-up of Freshman Class of 1966
5. 1970 Follow-up of Freshman Class of 1966
6. 1970 and 1971 Follow-up of Freshman Class of 1966
7. 1971 Follow-up of Freshman Class of 1966
8. 1971 Follow-up of Freshman Class of 1967
9. 1972 Follow-up of Freshman Class of 1968

Higher Education Research Institute, Los Angeles

1. Study of Utilization of College Education in Careers, Freshman Class of 1961 (in preparation)

Oakland School District, Oakland, California

1. Study of High School Graduates of 1965

American Institutes for Research, Palo Alto

1. Project TALENT Public Use File
2. Comparative Study of Proprietary and Non-Proprietary Vocational Training Programs, enrolled students
3. Comparative Study of Proprietary and Non-Proprietary Vocational Training Programs, alumni

Bureau of Social Science Research, Washington, D.C.

1. Study of June 1958 Graduates of Four-Year Colleges
2. NDEA Graduate Fellowships Survey of Graduate Students Preparing for Academic Careers
3. Study of Junior Colleges and Vocational-Technical Centers, enrolled students
4. Study of Junior Colleges and Vocational-Technical Centers, graduates

5. NIH Evaluation of Fellowship and Training Grant Programs in Health and Related Fields, enrolled students
6. NIH Evaluation of Fellowship and Training Grant Programs in Health and Related Fields, graduates
7. Study of Former NIH Nurse Scientist and Professional Nurse Trainees

National Center for Educational Statistics, U.S. Office of Education,
Washington, D.C.

1. National Longitudinal Study of the High School Class of 1972

Survey Archive, Social Science Research Council, University of Essex, England

1. Factors Influencing Choice of Higher Education--Fifth Form Students
2. Factors Influencing Choice of Higher Education--First Year Sixth Form Students
3. Factors Influencing Choice of Higher Education--Upper Level Sixth Form Students
4. Factors Influencing Choice of Higher Education--Full Time "A" Level Students at Colleges of Further Education
5. National Survey of 1960 Graduates
6. Careers Study, Stage I: Sixth Form Study
7. Careers Study, Stage II: Final Year
8. Careers Study, Stage III: 1960 Graduates
9. National Survey of Teachers Beginning Their First Year of Service, 1966-1967
10. National Survey of Teachers Ending Their First of Service, 1966-1967

Central Statistical Office of Finland, Finland

1. Occupational Orientation of Young People in Finland

National Opinion Research Center, Chicago

1. A Longitudinal Study of the Career Plans and Experiences of June 1961 College Graduates, 1961-1964
2. A Longitudinal Study of the Career Plans and Experiences of June 1961 College Graduates, 1968 Follow-up Sample

American College Testing Program, Iowa City

1. Assessment of Career Development, Norm Group Grades 8-11
2. Career Planning Program, Norm Group Grades 8-11
3. Career Planning Program, Norm Group Grades 12-13

Social Security Administration, Baltimore

1. Continuous Work History Sample (numerous files)

Roper Public Opinion Research Center, Williamstown, Massachusetts

1. Purdue Public Opinion Panel, Poll 48, December 1956
2. Purdue Public Opinion Panel, Poll 67, September 1962
3. Purdue Public Opinion Panel, Poll 78, October 1966
4. Purdue Public Opinion Panel, Poll 85, December 1968
5. Purdue Public Opinion Panel, Poll 94, November 1971
6. Purdue Public Opinion Panel, Poll 98, March 1973
7. Roper Research Associates, Inc., Study 129, December 1968
8. NORC, Poll SRS 889-A, June 1966
9. NORC, Poll SRS-AM, January 1967
10. BASR, Poll B1044, Coming to the United States, 1965, Israel
11. Marplan, Poll JB 129, March 1970, Brazil
12. Marplan, Poll JB 137, April 1960, Brazil
13. Central Research Services, Poll Z 498, Survey on Youth Consciousness, November 1967, Japan
14. Central Research Services, Poll 3291, Public Opinion Survey on Consciousness of Youths, October 1969, Japan
15. Survey of Returned Participants, Tanzania #468
16. Youth Public Opinion Poll, February 1970, France
17. Public Opinion Poll K 701, May 1971, France
18. Study of Students' Attitudes, 1968, India
19. Public Opinion Poll 2030, July 1967, Germany
20. Public Opinion Poll 2048, January 1969, Germany

Interuniversity Consortium for Political Research, University of Michigan,
Ann Arbor

1. Carnegie Commission National Survey of Higher Education, undergraduate students
2. Carnegie Commission National Survey of Higher Education, graduate students
3. Carnegie Commission National Survey of Higher Education, faculty

Social Science Archive, Institute for Social Research, University of Michigan,
Ann Arbor

1. Youth in Transition Study

National Computer Systems, Minneapolis

1. Specialty Oriented Student Program

Educational Testing Service, Princeton

1. Study of Academic Growth

Institute for Research in Social Science, University of North Carolina,
Chapel Hill

1. Explorations in Equality of Opportunity
2. Lou Harris, Poll 1431, College Student Survey, February 1965

Human Resources Research Project, Ohio State University, Columbus

- 1 - 4. National Longitudinal Survey, four cohorts

Center for Vocational Education, Ohio State University, Columbus

1. Study of Significant Others (in preparation)

Social Science Information Utilization Laboratory, University of Pittsburgh,
Pittsburgh

1. Public Health Careers

National Institute for Personnel Research, South Africa

1. Longitudinal Vocational Guidance Follow-Up Project

National Central Bureau of Statistics, Sweden

1. Further Studies, Economic Activity, etc., of Graduates from Nine Year Compulsory School in Spring 1972, April 1973
2. Plans for Further Studies and Economic Activities of Graduates from Universities and Specialized Colleges During the First Quarter of 1974
3. Average Marks and Economic Activity, Studies, etc., One Year After Completed Education in Upper Secondary School for Pupils Who Graduated 1970-1972
4. The Labor Market Situation Half a Year After Graduation from Universities and Specialized Colleges Who Graduated During July - September 1973

Department of Rural Sociology, Texas A&M University, College Station

1. Study of Southern Youth

Center for Quantitative Studies in Social Science, University of Washington, Seattle

1. Student Opinion Survey, 1962-1964

TABLE 5
Data Sets Accepted for Careers Research Data Bank

1. Study of Students of Public and Proprietary Vocational Training Programs, AIR.
2. Study of Alumni of Public and Proprietary Vocational Training Programs, AIR.
3. Project TALENT, One Year/Five Year/Eleven Year Follow-Up, Public Use Sample, AIR.
4. Assessment of Career Development and Career Planning Program, Grades 8-11 Students, National Norm Group, ACT.
5. Career Planning Program, Grades 12-13 Students, National Norm Group, ACT.
6. Study of High School Graduates of 1965, Oakland Public Schools, COMSIS.
7. A Longitudinal Study of Career Plans and Experiences of June 1961 College Graduates, 1968 Follow-Up Sample, NORC.
8. Explorations in Equality of Opportunity, University of North Carolina.
9. Careers Study, Stage III: 1960 Graduates, University of Essex, England.
10. School to College - Opportunities for Post High School Education (SCOPE), IDLRS, Berkeley (four tape reels, one each for California, Illinois, Massachusetts, and North Carolina).

APPENDIX A
NATIONAL ADVISORY PANEL MEMBERS,
REGIONAL WORKSHOP PARTICIPANTS,
AND
CONFERENCE PRESENTERS AND REACTORS

1. National Advisory Panel Members

Henry Borow, University of Minnesota
Nancy Cole, American College Testing Program
Ed Gross, University of Washington
Norm Gysbers, University of Missouri
Thelma Hill, Largo School, School District of Upper Marlboro, Maryland
Henry Levin, Stanford University (first meeting only)
Howard Tuckman, Florida State University (second meeting only)

2. Regional Workshop Participants

Washington, D.C.

Janice M. Birk, University of Maryland
JoAnn Harris Bowlsbey, Western Maryland College
David W. Breneman, National Board on Graduate Education
E. Niel Carey, Maryland State Education Department
Junius H. George, Public Schools of the District of Columbia
Betsy Haley, Charlotte-Mecklenburg Schools
Elliott A. Krause, Northeastern University
Arthur M. Kroll, Educational Testing Service
Randolph R. Scott, Salem College
Alfred Stiller, Board of Cooperative Educational Services, Islip Occupational Center
Herbert E. Striner, University Research Corporation

New Orleans

S. Dale Ake, State Department of Education, Florida
Mary Bee Antholz, Appalachia Educational Laboratory, Inc.
John C. Dagley, University of Georgia
John L. Fulmer, Georgia Institute of Technology
Coy L. Hodges, Griffin Area Technical School
R. H. Hudson, Lockheed-Georgia Co.
Richard H. Johnson, University of Florida
Ruby Long, Bessemer Board of Education
Walter Rambo, Texas Education Agency
Richard P. Schumacher, Department of Public Instruction, Raleigh
Howard P. Tuckman, Florida State University
F. D. Wesley, Booker T. Washington High School, Houston, Texas

Chicago

Howard S. Becker, Northwestern University
Arland N. Benson, Roseville Minnesota Public Schools
Esther E. Diamond, Science Research Associates
L. Sunny Hansen, University of Minnesota
Chris D. Kehas, Manchester, N.H. Public Schools
George E. Leonard, Wayne State University
Juliet V. Miller, Oakland Schools, Pontiac, Michigan
Bernice Neugarten, University of Chicago
Dale Prediger, American College Testing Program
Louise Vetter, Center for Vocational Education
John M. Whiteley, University of California, Irvine
Patricia L. Wolleat, University of Wisconsin

Palo Alto

Ursula Delworth, Western Interstate Commission for Higher Education
Charles N. Guerrero, Porterville College
Bex Hagans, Northwest Regional Educational Laboratory
Don Hansen, University of California, Berkeley
Charles C. Healy, University of California, Los Angeles
Clarence D. Johnson, California State University, Fullerton
Byron E. McKinnon, Mesa Public Schools, Arizona
Georgia B. Meredith, Foothill College
Richard L. Olson, Beaverton Public Schools, Oregon
Ramiro Reyes, California State Department of Education
Rose Talley-Holloway, California State Department of Education
Barbara B. Varenhorst, Palo Alto Unified School District

3. Conference Presenters and Reactors

Presenters

Stephen P. Dresch, Institute for Demographic and Economic Studies
Russell Rhyne, Patterns & Systems, International
David V. Tiedeman, Northern Illinois University
Rue Bucher, University of Chicago
Martin R. Katz, Educational Testing Service
Samuel H. Osipow, Ohio State University

Reactors

Michael Olneck, Harvard University
Harry A. Grace, University of Southern California
Thomas L. Hilton, Educational Testing Service
Ronald M. Pavalko, Florida State University
Barbara Varenhorst, Palo Alto Unified School District
Dale J. Prediger, American College Testing Program

APPENDIX B

BIBLIOGRAPHIES

(for Annotated Materials and Unannotated Materials)
by categories of:

BOOKS

JOURNAL ARTICLES, MONOGRAPHS, AND REPORTS
UNPUBLISHED MATERIAL

Prepared by

Barbara A. Sanderson
D. Randy Black
Craig K. Ewart
JoAnn L. Greene

B-0

ANNOTATED MATERIALS

BOOKS

- Astin, H. S., & Bisconti, A. S. Career plans of college graduates of 1965 and 1970. Bethlehem, Pennsylvania: CPC Foundation, 1973.
- Bachman, J. G. Youth in transition. Volume II. The impact of family background and intelligence on tenth-grade boys. Institute for Social Research: University of Michigan, 1970.
- Bachman, J. G., Kahn, R. L., Mednick, M. T., Davidson, T. N., & Johnston, L. D. Youth in transition: Volume I. Blueprint for a longitudinal study of adolescent boys. Institute for Social Research: University of Michigan, 1967.
- Bailey, L. Career education: New approaches to human development. Bloomington, Illinois: McKnight Publishing Co., 1973.
- Becker, G. S. Human capital. New York: Columbia University Press, 1964.
- Berdie, R. F., & Hood, A. Decisions for tomorrow: Plans of high school seniors for after graduation. Minneapolis: University of Minnesota Press, 1965.
- Berg, I. Education and jobs: The great training robbery. Boston: Beacon Press, 1971.
- Blau, P. M., & Duncan, O. D. The American occupational structure. New York: Wiley, 1967.
- Borow, H. Career development in adolescence. In J. F. Adams (Ed.), Understanding adolescence. Boston: Allyn and Bacon, 1973, 421-452.
- Caplow, T. The sociology of work. Minneapolis: University of Minnesota Press, 1954.
- Crites, J. O. Vocational psychology. New York: McGraw-Hill, 1969.
- Crites, J. O. The maturity of vocational attitudes in adolescence. Iowa City: University of Iowa, 1971.
- Davis, J. A. Undergraduate career decisions: Correlates of occupational choice. Chicago: Aldine, 1965.
- Duncan, O. D., Featherman, D. L., & Duncan, B. Socioeconomic background and achievement. New York: Seminar Press, 1972.
- Freeman, R. B. The market for college-trained manpower: A study in the economics of career choice. Cambridge: Harvard University Press, 1971.
- Ginzberg, E., Ginsberg, S. W., Axelrod, S., & Herma, J. L. Occupational choice: An approach to a general theory. New York: Columbia University Press, 1951.

- Gribbons, W. D., & Lohnes, P. R. Emerging careers. New York: Teachers College Press, 1968.
- Hall, R. H. Occupations and the social structure. Englewood Cliffs, New Jersey: Prentice-Hall, 1969.
- Herr, E. L. (Ed.). Vocational guidance and human development. Boston: Houghton-Mifflin, 1974.
- Holland, J. L. Making vocational choices: A theory of careers. New Jersey: Prentice-Hall, 1973.
- Johnston, J., & Backman, J. G. Youth in transition: Volume V: Young men and military service. Institute for Social Research: University of Michigan, 1972.
- Katz, M. Decisions and values: A rationale for secondary school guidance. New York: College Entrance Examination Board, 1963.
- Kroll, A. M., Dinklage, L. B., Lee, J., Morley, E. D., & Wilson, E. H. Career development: Growth and crisis. New York: Wiley, 1970.
- Laccaria, J. Theories of occupational choice and vocational development. Boston: Houghton-Mifflin, 1970.
- Lofquist, L. H., & Davis, R. V. Adjustment to work: A psychological view of man's problems in a work-oriented society. New York: Appleton-Century-Crofts, 1969.
- Osipow, S. H. Theories of career development. New York: Appleton-Century-Crofts, 1968.
- Pavalko, R. M. Occupational choice. In Sociology of occupations and professions. Itasca, Illinois: F. E. Reacock, 1971, 44-79.
- Rosenberg, M. Society and the adolescent self-image. Princeton: Princeton University Press, 1965.
- Schafer, C. J., & Kaufman, J. J. (Eds.). Vocational education: Social and behavioral perspectives. Lexington, Mass.: Heath Lexington Books, 1971.
- Schultz, T. W. The economic value of education. New York: Columbia University Press, 1963.
- Solomon, L., & Taubman, P. (Eds.). Does college matter? Some evidence on the impact of higher education. New York: Academic Press, 1973.
- Striner, H. E. Continuing education as a national capital investment. The W. E. Upjohn Institute for Employment Research, 1972.
- Super, D. E., & Overstreet, P. The vocational maturity of ninth-grade boys. New York: Teachers College, Columbia University, 1960.
- Terkel, S. Working: People talk about what they do all day and how they feel about what they do. New York: Pantheon Books, 1974.

- Tiedeman, D. V., & O'Hara, R. P. Career development: Choice and adjustment. Princeton, N. J.: College Entrance Examination Board, 1963.
- Tillery, D. Distribution and differentiation of youth: A study of transition from school to college. Cambridge, Mass.: Ballinger, 1973.
- Tillery, D., Sherman, B., & Donovan, D. Helpfulness of parents, school personnel and peers to students with different educational aspirations. New York: College Entrance Examination Board, 1968.
- Trent, J. W., & Medsker, L. L. Beyond high school. San Francisco: Josey-Bass, 1968.
- Zald, M. N. Occupations and organizations in American society. Chicago: Markham Publishing Co., 1971.

BOOKS

- Aronson, R. I. Components of occupational change in the United States, 1950-1960. Ithaca: Cornell University, 1969.
- Astin, A. W., & Panos, R. J. The educational and vocational development of college students. Washington, D.C.: American Council on Education, 1969.
- Astin, H. S., et.al. Women: A bibliography on their education and careers. Washington, D.C.: Human Service Press, 1971.
- Bachman, J. G., Kahn, R. L., Mednick, M. T., Davidson, T. N., & Johnson, L. D. Youth in transition, volume I: Blueprint for a longitudinal study of adolescent boys. Institute for Social Research: University of Michigan, 1967.
- Bandura, A. Social learning theory. New York: General Learning Press, 1971.
- Becker, G. S. Human capital and the personal distribution of income. University of Michigan, The Woytinsky Lectures, 1967.
- Blaug, M. An introduction to the economics of education. London: Penguin Press, 1970.
- Borow, H. (Ed.). Man in a world at work. Boston: Houghton-Mifflin, 1964.
- Bowles, S. Unequal education and the reproduction of the social division of labor. In M. Carnoy (Comp.), Schooling in a corporate society; The political economy of education in America. New York: McKay, 1972.
- Brim, O. G. Socialization after childhood. New York: J. Wiley, 1966.
- Broadrick, M. Logic and scientific method in research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching. Chicago: Rand McNally, 1963.
- Brown, D. Student's vocational choices: A review and critique. Boston: Houghton-Mifflin, 1970.
- Burt, S. M., & Lessinger, L. A. Volunteer industry involvement in public education. Lexington, Mass.: Heath Lexington Books, 1970.
- Clark, B. The open door college: A case study. New York: McGraw-Hill, 1960.
- Coleman, J. Policy research in the social sciences. New Jersey: General Learning Press, 1972.
- Darley, J. G., & Hagenah, T. Vocational interest measurement. Minnesota: University of Minnesota Press, 1965.
- Folger, J., Astin, H., & Bayer, A. Human resources and higher education: Staff report of the commission on human resources and advanced education. New York: Russell Sage Foundation, 1970.
- Gelatt, H. B., Varenhorst, B., & Carey, R. Deciding. New York: College Entrance Examination Board, 1972.

- Goldberger, A. S., & Duncan, O. D. Structural equation models in the social sciences. New York: Seminar Press, 1973.
- Gordon, D. M. Theories of poverty and unemployment: Orthodox, radical, and dual labor market perspectives. Lexington, Mass.: Lexington Books, 1972.
- Goslin, D. A. (Ed.). Handbook of socialization theory and research. Chicago: Rand McNally, 1969.
- Gribbons, W. D., & Lohnes, P. R. Career development. Weston, Mass.: Regis College, 1966.
- Griliches, Z. Notes on the role of education in production functions and growth accounting. In W. L. Hansen (Ed.), Education, income, and human capital: Studies in income and wealth (Vol. 35). New York: National Bureau of Economic Research, 1970.
- Gross, E. Work and society. New York: Growell, 1953.
- Gysbers, N. C., Moore, E. J., & Drier, H. Career guidance: Practice and perspectives. Worthington, Ohio: Charles A. Jones Publishing Company, 1973.
- Hansen, L. S. Career guidance practice in school and community. Washington, D.C.: National Vocational Guidance Association, 1970.
- Hansen, W. L. (Ed.). Education, income, and human capital: Studies in income and wealth (Vol. 35). New York: National Bureau of Economic Research, 1970.
- Herr, E. L. Decision-making and vocational development. Boston: Houghton-Mifflin, 1970.
- Hess, R. D., & Torney, J. V. The development of political attitudes in children. Chicago: Aldine Publishing Company, 1967.
- Hiestand, D. Changing careers after thirty-five: New horizons through professional and graduate study. New York: Columbia University Press, 1971.
- Holland, J. L. The psychology of vocational choice. Massachusetts: Blaisdell, 1966.
- Hos, I. R. Retraining the work force: An analysis of current experience. Berkeley: University of California Press, 1967.
- Hoppock, R. Occupational information. New York: McGraw-Hill, 1957.
- Hyman, H. H. The value systems of different classes. In R. Bendix & S. M. Lipset (Eds.), Class, status, and power: Social stratification in comparative perspectives (2nd ed.). New York: The Free Press, 1966.
- Kaplan, A. The conduct of inquiry: Methodology for behavioral science. San Francisco: Chandler, 1964.
- Kohn, M. L. Class and conformity: A study of values. Homewood, Ill.: Dorsey, 1969.

- Maslow, A. H. Toward a psychology of being. New York: Van Nos Reinhold, 1971.
- McDill, E. L., & Rigsby, L. C. Structure and process in secondary schools. Baltimore: John Hopkins University Press, 1973.
- Neff, W. S. Work and human behavior. New York: Atherton Press, 1968.
- Parsons, F. Choosing a vocation. Boston: Houghton-Mifflin, 1909.
- Peters, H. S., & Hansen, J. C. (Eds.). Vocational guidance and career development: Selected readings. New York: Macmillan, 1966.
- Roth, R. M., et.al. The psychology of vocational development: Readings in theory and practice. Rockleigh, New Jersey: Allyn, 1970.
- Schill, W. J., & Nichols, H. E. Career choice and career preparation. Danville, Ill.: Interstate, 1970.
- Schultz, T. W. Investment in human capital; The role of education and of research. New York: Free Press, 1971.
- Sheppard, H. L., & Belitsky, A. H. The job hunt: Job-seeking behavior of unemployed workers in a local economy. Baltimore: The Johns Hopkins Press, 1966.
- Slocum, W. L. Occupational careers: A sociological perspective. Chicago: Aldine Publishing Company, 1967.
- Show, R. E. Theory construction for research on teaching. In R. M. W. Traver, (Ed.), Second handbook of research on teaching. Chicago: Rand McNally College Publishing Co., 1973.
- Super, D. E. The psychology of careers. New York: Harper, 1957. (a)
- Super, D. E. Vocational development: A framework for research. New York: Teachers College, Columbia University, 1957. (b)
- Super, D. E. Career development: Self-concept theory. Essays in vocational development. New York: College Entrance Examination Board, 1963.
- Super, D. E., & Bohn, M. J. Occupational psychology. Belmont, Calif.: Wadsworth Publishing Company, 1970.
- Swerdlhoff, S., & Rosen, H. Eight years later: Education and careers of young Jewish adults. Washington, D.C.: B'nai B'rith Career and Counseling Services, 1973.
- Thurco, L. C. Investment in human capital. Belmont, Calif.: Wadsworth Publishing Company, 1970.
- Tolbert, E. L. Counseling for career development. Boston: Houghton-Mifflin, 1974.
- Turner, R. H. The social context of ambition; A study of high school seniors in Los Angeles. San Francisco: Chandler Publishing Company, 1964.

Vroom, V. H. Work and motivation. New York: Wiley, 1964.

Whitley, J. M., & Resnikoff, A. (Eds.). Perspectives on vocational development. Washington, D.C.: American Personnel and Guidance Association, 1974.

Williams, W. M. (Ed.). Occupational choice. Los Angeles: Sage Publication, 1974.

Zylowsky, D. G. (Ed.). Vocational behavior: Readings in theory and research. Holt, Rinehart, and Winston, 1968.

JOURNAL ARTICLES, MONOGRAPHS, AND REPORTS

- Almquist, E. M. Sex stereotypes in occupational choice: The case for college women. Journal of Vocational Behavior, 1974, 5(1), 13-21.
- Anderson, T., & Olsen, L. Congruence of self and ideal-self and occupational choices. Personnel and Guidance Journal, 1965, 44, 171-176.
- Ashby, J. D., Wall, H. W., & Osipow, S. H. Vocational certainty and indecision in college freshmen. Personnel and Guidance Journal, 1966, 44, 1037-1041.
- Astin, A. W. Effect of different college environments on the vocational choices of high aptitude students. Journal of Counseling Psychology, 1965, 12(1), 28-34.
- Astin, A. W., & Nichols, R. C. Life goals and vocational choice. Journal of Applied Psychology, 1964, 48, 50-58.
- Astin, H. S. Career development of girls during the high school years. Journal of Counseling Psychology, 1968, 15, 536-540.
- Astin, H. S., & Myint, T. Career development of young women during the post-high school years. Journal of Counseling Psychology, 1971, 18(4), 369-393.
- Austin, D. L. Career paths analysis can aid education and industry. The Vocational Guidance Quarterly, September, 1974, 41-48.
- Baird, L. L. Cooling out and warming up in the junior college. Measurement and Evaluation in Guidance, 1971, 4(3), 160-171.
- Berman, Y. Occupational aspirations of 545 female high school seniors. Journal of Vocational Behavior, 1972, 2(2), 173-177.
- Binderman, M. B. The failure of freedom of choice: Decision-making in a southern black community. Social Forces, 1972, 50(4), 487-498.
- Blaikie, N. W. H. Towards a theoretical model for the study of occupational choice. Sociology, 1971, 5(3), 313-330.
- Blau, P. M., Gustad, J. W., Jessor, R., Parnes, H. S., & Wilcock, R. C. Occupational choice: A conceptual framework. Industrial Labor Relations Review, 1956, 9, 531-543.
- Blum, S. H. The desire for security: An element in the vocational choice of college men. Journal of Educational Psychology, 1961, 52(6), 317-321.
- Bordin, E. S., Nachmann, B., & Segal, S. J. An articulated framework for vocational development. Journal of Counseling Psychology, 1963, 10(2), 107-116.

- Borow, H. Student decision making: When and how. In K. J. McCaffrey & E. King (Eds.), College/career choice: Right student, right time, right place. American College Testing Program, Monograph 9, 1973.
- Bowles, S. Understanding unequal economic opportunity. American Economic Review, Papers and Proceedings, 1973, 63, 346-356.
- Brookover, W. V., Erickson, E. L., & Joiner, L. M. Educational aspirations and educational plans in relation to academic achievement and socioeconomic status. School Review, 1967, 75(4), 392-400.
- Brown, D. Students' vocational choices: A review and critique. Guidance Monograph Series, 1970, Series IV.
- Brunkan, R. J. Perceived parental attitudes and parental identification in relation to field of vocational choice. Journal of Counseling Psychology, 1965, 12(1), 39-47.
- Brunkan, R. J. Perceived parental attitudes and parental identification in relation to problems in vocational choice. Journal of Counseling Psychology, 1966, 13(4), 394-402.
- Burchinal, L. G., Haller, A. O., & Taves, M. J. Career choices of rural youth in a changing society. Report No. 458. Agricultural Exploration Station: University of Minnesota, November 1962.
- Carkhuff, R., Alexik, M., & Anderson, S. Do we have a theory of vocational choice? Personnel and Guidance Journal, 1967, 46, 335-345.
- Carlin, L. O. Vocational decisions and high school experiences. Vocational Guidance Quarterly, 1960, 8, 168-170.
- Carmody, J. F., Fenske, R. H., & Scott, C. S. Changes in goals, plans and background characteristics of college-bound high school students. American College Testing Program, ACT Research Report, 1972, 52.
- Carroll, Jr., S. J. Relationship of various college graduate characteristics to recruiting decision. Journal of Applied Psychology, 1966, 50, 421-423.
- Clarke, R. H., Gelatt, H. B., & Levine, L. A decision-making paradigm for local guidance research. Personnel and Guidance Journal, 1965, 44, 40-51.
- Cohen, E. G.. Parental factors in educational mobility. Sociology of Education, Fall 1965, 404-425.
- Cole, N. S., Whitney, D. R., & Holland, J. L. A spatial configuration of occupations. Journal of Vocational Behavior, 1971, 1, 1-9.
- Cosby, A. G., & Picou, J. S. Structural models and occupational aspirations: Black-white variations among deep-south adolescents. Journal of Vocational Behavior, 1973, 3(1), 1-14.

- Crites, J. O. Review of D. V. Tiedeman and R. P. O'Hara, Career development: Choice and adjustment. Contemporary Psychology, 1965, 10, 80-81.
- Curry, E. W., & Picou, J. S. Rural youth and anticipatory occupational goal deflection. Journal of Vocational Behavior, 1971, 1, 317-330.
- Davis, J. A. The campus as a frog pond: An application of the theory of relative deprivation to career decisions of college men. American Journal of Sociology, 1966, 72(1), 17-31.
- Day, H. I. Intrinsic motivation and vocational choice. Journal of Psychology, 1972, 81(1), 3-6.
- Day, S. R. Teacher influence on the occupational preferences of high-school students. Vocational Guidance Quarterly, 1966, 14, 215-219.
- Dilley, J. S. Decision-making ability and vocational maturity. Personnel and Guidance Journal, 1965, 44, 423-427.
- Dixon, P. W., Fukuda, N. K., & Ignacio, R. Prediction of post-high school destination choice from curriculum, financial need, and students' ratings of parents' wishes for post-high school occupation. Journal of Experimental Education, 1972, 41(2), 18-22.
- Dole, A. A. Factors in educational decisions among public school pupils. Psychology in the Schools, 1969, 6(1), 73-79.
- Drew, D. E., & Astin, A. W. Undergraduate aspirations: A test of several theories. American Journal of Sociology, 1972, 77(6), 1151-1163.
- Elliott, J. L. Family structure and college plans of siblings from the blue collar families. (Doctoral dissertation, University of Pittsburg, 1968). (University Microfilms No. 68-12, 671)
- Elton, C. F., & Rose, H. A. Male occupational constancy and change: Its prediction according to Holland's theory. Journal of Counseling Psychology, 1970, 17(5, Pt. 2), 1-19.
- Featherman, D. L. A research note: A social structural model for the socio-economic career. American Journal of Sociology, 1971, 77(2), 293-304.
- Fingerit, Tobin, & Mast. Research and current vocational programs in vocational guidance. Communication in Guidance Project: University of Pittsburgh, 1967. (Contract No. OE 6-85-052)
- Flanagan, J. C. Project TALENT: The identification, development, and utilization of human talents, the American high school student. Report No. CRP-635. University of Pittsburgh, 1964.
- Flanagan, J. C. Project TALENT: Five years after high school and appendix II. Final report. Pittsburgh: University of Pittsburgh, American Institutes for Research, 1971. (Bureau No. BR-50606-Grant-OEG-09-610065-1367(085))

- Flanagan, J. C. The first 15 years of project TALENT: Implications for career guidance. Vocational Guidance Quarterly, 1973, 22(1), 8-14.
- Forslund, M. A., & Malry, L. Social class and relative level of occupational aspiration: Implications for delinquency and education. National Association of Secondary School Principals, 1970, 54(349), 106-115.
- Freeman, R. B., & Breneman, D. W. Forecasting the Ph.D. labor market: Pitfalls for policy. Technical report no. 2. Washington, D.C.: National Board on Graduate Education, April 1974.
- Gelatt, H. B., & Clarke, R. B. Role of subjective probabilities in the decision process. Journal of Counseling Psychology, 1967, 14, 331-341.
- Gintis, H. Education, technology, and the characteristics of worker productivity. American Economic Review, Papers and Proceedings, 1971, 61, 266-279.
- Ginzberg, E. Toward a theory of occupational choice: A restatement. Vocational Guidance Quarterly, 1972, 20(3), 169-176.
- Gottlieb, D. Youth and the meaning of work. Manpower Research Monograph, 1974, 32.
- Greenhaus, J. H. Self-esteem as an influence on occupational choice and occupational satisfaction. Journal of Vocational Behavior, 1971, 1, 75-83.
- Gribbons, W. D., Halperin, S., & Lohnes, P. R. Application of stochastic models in research on career development. Journal of Counseling Psychology, 1966, 13, 403-408.
- Gross, E. A sociological approach to the analysis of preparation for work life. Personnel and Guidance Journal, 1967, 45, 416-423.
- Gross, E. Counselors under fire: Youth opportunity centers. Personnel and Guidance Journal, 1969, 47, 404-409.
- Gysbers, N. C., Johnston, J. A., & Gust, T. Characteristics of homemaker- and career-oriented women. Journal of Counseling Psychology, 1968, 15, 541-546.
- Hager, P. C., & Elton, C. F. The vocational interests of black males. Journal of Vocational Behavior, 1971, 1, 153-158.
- Hall, J. A., & Wiant, Jr., H. V. Does school desegregation change occupational goals of Negro males? Journal of Vocational Behavior, 1973, 3(27), 175-179.
- Haller, A. O., & Portes, A. Status attainment processes. Sociology of Education, 1973, 46(1), 51-91.
- Hansen, W. L. Total and private rates of return to investment in schooling. Journal of Political Economy, 1963, 71, 128-140.

- Harren, V. A. The vocational decision-making process among college males. Journal of Counseling Psychology, 1966, 13(3), 271-277.
- Hawley, P. Perceptions of male models of femininity related to career choice. Journal of Counseling Psychology, 1972, 19(4), 308-313.
- Haystead, J. Social structure, awareness contexts and processes of choice. Sociological Review, 1971, 19(1), 79-94.
- Hershenson, D. B. Techniques for assisting life-stage vocational development. Personnel and Guidance Journal, 1969, 47(8), 776-780.
- Hilton, T. L. Career decision-making. Journal of Counseling Psychology, 1962, 9, 291-298.
- Hilton, T. L. A study of intellectual growth and vocational development. Final report. Princeton, New Jersey: Educational Testing Service, March 1971.
- Hind, R. R., & Wirth, T. E. The effect of university experience on occupational choice among undergraduates. Sociology of Education, 1969, 42(1), 58-70.
- Hodge, R. W., Siegel, P. M., & Rossi, P. H. Occupational prestige in the United States, 1925-63. American Journal of Sociology, 1964, 70, 286-302.
- Holland, J. L. Explorations of a theory of vocational choice: VI. A longitudinal study using a sample of typical college students. Journal of Applied Psychology Monograph Supplement, 1968, 52(1), 1-37.
- Horner, J. T., Buterbaugh, J. G., & Carefoot, J. J. Factors relating to occupational and educational decision-making of rural youth. Research summary. Final report. College of Agriculture: University of Nebraska, April 1967.
- Houtras, P. T., Williams, C. M., & Williams, J. D. Manifest anxiety and vocational preference among male graduate students. Psychological Reports, 1972, 30, 886.
- Hughes, Jr., H. M. Vocational choice, level and consistency: An investigation of Holland's theory on an employed sample. Journal of Vocational Behavior, 1972, 2(4), 377-388.
- Hunt, R. A. Self and other semantic concepts in relation to choice of a vocation. Journal of Applied Psychology, 1967, 51(3), 242-246.
- Hurley, R. B. Race, fatherlessness, and vocational development: An exploration of relationships between membership in nuclear or fatherless families and level of occupational aspiration and expectation, self-esteem, extrinsic work values and person-orientation among a sample of black and white adolescent boys. (Doctoral dissertation, New York University, 1972). (University Microfilms No. 73-8169)

- Jepsen, D. A., & Dilley, J. S. Vocational decision-making models: A review and comparative analysis. Review of Educational Research, 1974, 44(3), 331-349.
- Johnston, J., & Bachman, J. G. The transition from high school to work: The work attitudes and early occupational experiences of young men. A special report from the youth in transition project. Ann Arbor: Institute for Social Research, University of Michigan, 1973.
- Kahl, J. A. Educational and occupational aspirations of "common man" boys. Harvard Educational Review, 1953, 23, 186-203.
- Kaldor, D. R., & Zytowski, D. G. A maximizing model of occupational decision-making. Personnel and Guidance Journal, 1969, 47(8), 781-788.
- Kamens, D. H. The college "charter" and college size: Effects on occupational choice and college attrition. Sociology of Education, 1971, 44(3), 270-296.
- Kandel, D. B., & Lesser, G. S. Parental and peer influences on adolescent educational plans. American Sociological Review, 1969, 34(2), 213-233.
- Katz, M. A model of guidance for career decision-making. Vocational Guidance Quarterly, 1966, 15, 2-10.
- Kim, K. H. The social context of occupational and educational mobility aspirations of Negro adolescents. (Doctoral dissertation, University of Maryland, 1968). (University Microfilms No. 69-8047)
- Kimball, R. L., Sedlacek, W. E., & Brooks, Jr., G. C. Black and white vocational interests on Holland's self-directed search. Report No. CSC-RR-6-71. College Park: University of Maryland, 1971.
- Kuvlesky, W. R., & Pelham, J. Occupational status orientations of rural youth: Structured annotations and evaluations of the research literature. Report No. DEPT-TR-66-3. College Station: Texas A & M University, September 1966.
- Lane, M. Explaining educational choice. Sociology, 1972, 6(2), 255-266.
- Lee, S. M. Job selection by college graduates. Personnel Journal, 1970, 49(5), 392-295.
- Leventhal, G. An exploratory investigation on the influence of sibling associations on occupational preferences. Raleigh: Center for Occupational Education, North Carolina State University, 1969.
- Lo Cascio, R. Delayed and impaired vocational development: A neglected aspect of vocational development theory. Personnel and Guidance Journal, 1964, 42, 885-887.
- Madaus, G. F., & O'Hara, R. P. Vocational interest patterns of high-school boys: A multivariate approach. Journal of Counseling Psychology, 1967, 14(2), 106-112.

- Mansfield, R. Self-esteem, self-perceived abilities, and vocational choice. Journal of Vocational Behavior, 1973, 3, 431-433.
- Marr, E. Some behaviors and attitudes relating to vocational choice. Journal of Counseling Psychology, 1965, 12, 404-408.
- McLaughlin, D. H., & Tiedeman, D. V. Eleven-year career stability and changes as reflected in Project TALENT data through the Flanagan, Holland, and Roe occupational classification systems. Journal of Vocational Behavior, 1974, 5(2), 177-196.
- Meir, E., & Friedland, N. The relationship between intrinsic-extrinsic needs and occupational preferences. Journal of Vocational Behavior, 1971, 1, 159-165.
- Miller, A. L., & Tiedeman, D. V. Decision making for the '70's: The cubing of the Tiedeman paradigm and its application in career education. Focus on Guidance, 1972, 5(1), 1-15.
- Morrow, Jr., J. M. A test of Holland's theory of vocational choice. Journal of Counseling Psychology, 1971, 18(5), 422-425.
- Musgrave, P. W. Continuities in the sociological theory of occupational choice: A note. Sociological Review, 1968, 16(1), 93-97.
- National Bureau of Economic Research. The measurement and interpretation of job vacancies: A conference report. New York: author, 1966.
- Nelson, J. I. Participation and college aspirations: Complex effects of community size. Rural Sociology, 1973, 38(1), 7-16.
- Norton, J. L. Current status of the measurement of vocational maturity. Vocational Guidance Quarterly, 1970, 165-169.
- Olive, H. Sex differences in adolescent vocational preferences. Vocational Guidance Quarterly, 1973, 21(3), 199-201.
- Osipow, S. H. Success and preference: A replication and extension. Journal of Applied Psychology, 1972, 56(2), 179-180.
- Osipow, S. H., & Scheid, A. B. The effect of manipulated success ratios on task preference. Journal of Vocational Behavior, 1971, 1, 93-98.
- Pallone, N. J., Rickard, F. S., & Hurley, R. B. Key influencers of occupational preference among black youth. Journal of Counseling Psychology, 1970, 17(6), 498-501.
- Panel on Youth of the President's Science Advisory Committee. Youth: Transition to adulthood. Executive Office of the President: Office of Science and Technology, June 1973.
- Perrone, P. A. Factors influencing high school seniors' occupational preferences. Personnel and Guidance Journal, 1964, 42, 976-980.

- Prediger, D., Roth, J., & Noeth, R. Nationwide study of student career development: Summary of results. American College Testing Program, ACT Research Report, 1972, 61.
- Rehberg, R. A., & Hotchkiss, L. Educational decision makers: The school guidance counselor and social mobility. Sociology of Education, 1972, 45(4), 339-361.
- Rehberg, R. A., & Sinclair, J. Adolescent achievement behavior, family authority structure, and parental socialization processes. American Journal of Sociology, 1970, 75(6), 1012-1034.
- Resnick, H., Fauble, M. L., & Osipow, S. H. Vocational crystallization and self-esteem in college students. Journal of Counseling Psychology, 1970, 17(5,1), 465-467.
- Risch, C., & Beymer, L. A framework for investigating career choice of women. Vocational Guidance Quarterly, 1967, 16(2), 87-92.
- Roe, A., & Siegelman, M. The origin of interests. APGA Inquiry Studies, American Personnel and Guidance Association, 1, 1964.
- Salomone, J. J., & Gould, P. A. Review and synthesis of research on occupational mobility. The Center for Vocational and Technical Education Information Analysis Series, 1974, 96.
- Sanborn, M. P. Vocational choice, college choice, and scholastic success of superior students. Vocational Guidance Quarterly, 1965, 13, 161-168.
- Schultz, T. W. Investment in human capital. American Economic Review, 1961, 51, 1-17. (a)
- Schultz, T. W. Investment in human capital. Reply. American Economic Review, 1961, 51, 1035-1039. (b)
- Schultz, T. W. The rate of return in allocating investment resources to education. Journal of Human Resources, 1967, 2(3), 293-309.
- Sewell, W. H., & Shah, V. P. Socioeconomic status, intelligence, and the attainment of higher education. Sociology of Education, 1967, 40(1), 1-23.
- Sewell, W. H. & Shah, V. P. Parents' education and children's educational aspirations and achievements. American Sociological Review, 1968, 33(2), 191-209. (a)
- Sewell, W. H., & Shah, V. P. Social class, parental encouragement, and educational aspirations. American Journal of Sociology, 1968, 73(5), 559-572. (b)
- Shaffer, H. G. Investment in human capital: Comment. American Economic Review, 1961, 51, 1026-1034.
- Shaw, M. C. The function of theory in guidance programs. Guidance Monograph Series, 1968, Series I.

- Simons, J. B. An existential view of vocational development. Personnel and Guidance Journal, 1966, 44, 604-610.
- Singell, L. D. Investment in education and ghetto poverty: A note on the dropout decision. Social Science Quarterly, 1972, 53, 122-128.
- Stefflre, B. Vocational development: Ten propositions in search of a theory. Personnel and Guidance Journal, 1966, 44, 611-616.
- Stroup, A. L., & Robins, L. N. Elementary school predictors of high school dropout among black males. Sociology of Education, 1972, 45, 212-222.
- Super, D. E. Vocational theory: Persons, positions, and processes. The Counseling Psychologist, 1969, 1(6), 2-9.
- Tiedeman, D. V. Decision and vocational development: A paradigm and its implications. Personnel and Guidance Journal, 1961, 40(1), 15-20.
- Tillery, D., Donovan, D., & Sherman, B. SCOPE: Grade eleven profile 1968 questionnaire selected items. New York: College Entrance Examination Board; Berkeley: University of California, 1969.
- Tillery, D., Sherman, B., & Donovan, D. Helpfulness of parents, school personnel and peers to students with different educational aspirations. New York: College Entrance Examination Board; Berkeley: Center for Research and Development in Higher Education, University of California, 1968.
- Tseng, M. S., & Carter, A. R. Achievement motivation and fear of failure as determinants of vocational choice, vocational aspiration, and perception of vocational prestige. Journal of Counseling Psychology, 1970, 17(2), 150-156.
- Tuckman, B. W. Personality and satisfaction with occupational choice: Role of environment as a mediator. Psychological Reports, 1968, 23, 543-550.
- Tuckman, H. P. Determinants of college student migration. Southern Economic Journal, 1970, 37(2), 184-189.
- Tuckman, H. P. High school inputs and their contribution to school performance. The Journal of Human Resources, 1971, 6(4), 490-509.
- Tuckman, H. P. Local colleges and the demand for higher education: The enrollment including effects of location. The American Journal of Economics and Sociology, 1973, 32(3), 257-268.
- Tuckman, H. P., & Brosch, G. Changes in personal income and their effect on income share. Southern Economic Journal, 1974, 41(1), 78-86.
- Tyler, R. W. The right student, the right time, and the right place. In K. S. McCaffrey & E. King (Eds.), College/career choice: Right student, right time, right place. American College Testing Program, Monograph 9, 1973, 1-13.

- Vander Well, A. R. Influence of financial need on the vocational development of college students. American College Testing Program, ACT Research Report, 1970, 36.
- Vondracek, S. I., & Kirchner, E. P. Vocational development in early childhood: An examination of young children's expressions of vocational aspirations. Journal of Vocational Behavior, 1974, 5(2), 251-260.
- Werts, C. E. Social class and initial career choice of college freshmen. Sociology of Education, 1966, 39, 74-85.
- Werts, C. E. Paternal influence on career choice. Journal of Counseling Psychology, 1968, 15(1), 48-52.
- Wheeler, C. L., & Carnes, E. F. Relationships among self-concepts, ideal-self-concepts, and stereotypes of probable and ideal vocational choices. Journal of Counseling Psychology, 1968, 15(6), 530-535.
- Whitney, D. R. Predicting from expressed vocational choice: A review. Personnel and Guidance Journal, 1969, 48(4), 279-285.
- Ziegler, D. J. Self-concept, occupational member concept, and occupational interest area relationships in male college students. Journal of Counseling Psychology, 1970, 17(2), 133-136.
- Ziegler, D. J. Attribution of personality characteristics to members of occupational groups. Psychological Reports, 1972, 31, 68.
- Ziegler, D. J. Distinctive self and occupational member concepts in different occupational preference groups. Journal of Vocational Behavior, 1973, 3, 53-60.
- Zytowski, D. G. Toward a theory of career development for women. Personnel and Guidance Journal, 1969, 47(7), 660-664.
- Zytowski, D. G. The influence of psychological factors upon vocational development. Guidance Monograph Series, 1970, Series IV.

JOURNAL ARTICLES, MONOGRAPHS, AND REPORTS

- Abe, C., & Holland, J. L. A description of college freshmen--I. Students with different choices of major field. Iowa City: American College Testing Program, May 1965. (ERIC Document Reproduction Service No. ED 014 74)
- Almqvist, E. M., & Angrist, S. S. Role model influences on college women's career aspirations. Merrill-Palmer Quarterly, 1971, 17(3), 263-279.
- Anastasi, A. Sex differences in vocational choices. National Catholic Guidance Conference Journal, 1969, 13(4), 63-76.
- Angrist, S. S. Changes in women's work aspirations during college (or work does not equal career). International Journal of Sociology of the Family, 1972, 2, 87-97.
- Astin, A. W., & Panos, R. J. They went to college--A descriptive summary of the class of 1965. Washington, D.C.: American Council on Education, 1967. (ERIC Document Reproduction Service No. ED 014 776)
- Astin, H. S. Patterns for career choice over time. Personnel and Guidance Journal, 1967, 45, 541-546.
- Astin, H. S. Personal and environmental factors in career decisions of young women. Final report. Washington, D.C.: Bureau of Social Science Research, Inc., 1970. (ERIC Document Reproduction Service No. ED 038 731)
- Bandura, A. Behavior theory and the models of man. American Psychologist, 1974, 29, 859-869.
- Bartlett, W. E. Vocational maturity: Its past, present and future development. Journal of Vocational Behavior, 1971, 1(3), 217-229.
- Becker, G. S., & Chiswick, B. R. Education and distribution of earnings. American Economic Review, 1966, 56(2), 358-369.
- Bell, H. M. Ego-involvement in vocational decisions. Personnel and Guidance Journal, 1960 38, 732-736.
- Ben-Porath, Y. The production of human capital and the life cycle of earnings. Journal of Political Economy, 1967, 75, 352-65.
- Bingham, W. C. The career model: Singular or plural? Counseling Psychology, 1968, 1(1), 32-34.
- Bjoraker, W. T., & Sledge, G. W. Educational and occupational adjustment of Wisconsin male youth. Bulletin 586. Madison: Madison College of Agricultural and Life Sciences, University of Wisconsin, January 1968. (ERIC Document Reproduction Service No. ED 028 286)
- Bottoms, G., & O'Kelley, G. L. Vocational-education as a developmental process. American Vocational Journal, 1971, 46, 21-24.
- Brown, R. H., & Kapes, J. T. A longitudinal study of the level of occupational aspirations of youth over the high school years. University Park, Pa.: Department of Vocational Education, Vocational Development Study, Pennsylvania State University, Monograph No. 15, 1973. (ERIC Document Reproduction Service No. ED 084 433)

- Brown, W. R. The perceived influence of significant others on career interests. (Doctoral dissertation, Indiana State University, 1971). (University Microfilms No. 72-32, 805)
- Campbell, R. E., Eggeman, D. F., Mehrotra, C., Pranitch, C., & Witteman, J. K. The choice of vocational education as an educational opportunity: A bibliography. Washington, D.C.: American Personnel and Guidance Association, 1968.
- Campbell, R. E., et.al. Vocational development of disadvantaged junior high school students. Final report. Columbus: Center for Vocational and Technical Education, Ohio State University, August 1969. (ERIC Document Reproduction Service No. ED 032 427)
- Caplan, S. W., Ruble, R. A., & Segel, D. A theory of educational and vocational choice in junior high school. Personnel and Guidance Journal, 1963, 42, 129-135.
- Career Education Task Force. Forward plan for career education research and development: Draft for discussion. Washington, D.C.: Dept. of Health Education, and Welfare, 1973. (ERIC Document Reproduction Service No. ED 076 849)
- Carol, A., & Samuel, P. The economic rationale of occupational choice. Industrial and Labor Relations Review, 1968, 21(2), 183-196.
- Clack, R. J. Occupational prestige and vocational choice. Vocational Guidance Quarterly, 1968, 16(4), 282-286.
- Cochran, D. J. The effects of a developmental outreach program on vocational choice processes. (Doctoral dissertation, University of Arizona, 1972). (University Microfilms No. 73-1147)
- Coleman, J. S. Equality of educational opportunity. Washington, D.C.: U.S. Government Printing Office, 1966.
- Cosby, A. G. Occupational expectations and the hypothesis of increasing realism of choice. Journal of Vocational Behavior, 1974, 5(1), 53-65.
- Coser, R. L., & Rokoff, G. Women in the occupational world: Social disruption and conflict. Social Problems, 1971, 18(4) 535-554.
- Cotgrove, S., & Fuller, M. Occupational socialization and choice: The effects of sandwich courses. Sociology, 1972, 6(1), 59-70.
- Crites, J. O. Vocational development and vocational education in adolescence. Final report. Iowa City: University of Iowa, December 1969. (ERIC Document Reproduction Service No. ED 058 451)
- Dilley, M. L. Inter-generational occupation mobility of graduate students. (Doctoral dissertation, Texas Women's University, 1973). (University Microfilms No. 76204)
- Dinkmeyer, D. A developmental approach to career development. Counseling and Values, 1971, 16(1), 28-33.
- Dole, A. A. Educational choice is not vocational choice. Vocational Guidance Quarterly, 1963, 12, 30-35.

- Dole, A. A., & Passons, W. R. Life goals and plan determinants reported by black and white high school seniors. Journal of Vocational Behavior, 1972, 2(3), 209-222.
- Duncan, O. D., Archibald, O. H., & Portes, A. Peer influences on aspirations: A reinterpretation. American Journal of Sociology, 1968, 74(2), 119-137.
- Duncan, O. D., & Featherman, D. L. Psychological and cultural factors in the process of occupational achievement. Social Science Research, 1972, 1, 121-145.
- Elton, C. F. Unrealistic vocational choice: A research model. Journal of Vocational Behavior, 1973, 3(2), 153-161.
- Featherman, D. L. Achievement orientations and socioeconomic career attainments. American Sociological Review, 1972, 37, 131-143.
- Figler, H. E. An investigation of a theory of vocational development. (Doctoral dissertation, Florida State University, 1968). (University Microfilms No. 68-16, 368)
- Galinsky, M. D., & Fast, I. Vocational choice as a focus of the identity search. Journal of Counseling Psychology, 1965, 13(1), 89-92.
- Garbin, A. P. Occupational choice and the multidimensional ranking of occupations. Vocational Guidance Quarterly, 1967, 16(1), 17-25.
- Garbin, A. P., Jackson, D. P., & Campbell, R. E. Worker adjustment--Youth in transition from school to work. An annotated bibliography of recent literature. Bibliography 2. Columbus: Center for Vocational Education, Ohio State University, 1968. (ERIC Document Reproduction Service No. ED 021 070)
- Gelatt, H. B. Decision making: A conceptual frame of reference for counseling. Journal of Counseling Psychology, 1962, 9, 291-298.
- Green, L. B., Parker, H. J. Parental influence upon adolescents' occupational choice: A test of an aspect of Roe's theory. Journal of Counseling Psychology, 1965, 12, 379-383.
- Gribbons, W. D., & Lohnes, P. R. Career development. Interim report. Weston, Mass.: Regis College, October 1968. (ERIC Document Reproduction Service No. ED 028 490)
- Gross, E. The occupational variable as a research category. American Sociological Review, 1959, 24, 640-649.
- Gustavus, W. T. Successful students, readmitted students, and dropouts: A comparative study of student attrition. Social Science Quarterly, 1972, 53(1), 36-144.
- Hansen, R. A., & Neujahr, J. L. A comparison of career development between males and females gifted in science. Proceedings of the 81st Annual Convention of the American Psychological Association, Montreal, Canada, 1973, 8, 669-670.
- Harmon, L. W. The childhood adolescent career plans of college women. Journal of Vocational Behavior, 1971, 1, 45-56.

- Hawley, P. What women think men think: Does it affect their career choice? Journal of Counseling Psychology, 1971, 18(3) 193-199.
- Hershenson, D. B. Life-state vocational development system. Journal of Counseling Psychology, 1965, 15(1), 23-30.
- Hershenson, D. B., & Roth, R. M. A decisional process model of vocational development. Journal of Counseling Psychology, 1966, 13(3), 368-370.
- Hills, J. R. Decision theory and college choice. Personnel and Guidance Journal, 1964, 43, 17-22.
- Holland, J. L. A theory of vocational choice. Journal of Counseling Psychology, 1959, 6, 35-45.
- Hollender, J. W. Development of vocational decisions during adolescence. Journal of Counseling Psychology, 1971, 18(3), 244-248.
- Hollander, M. A., & Parker H. J. Occupational stereotypes and needs: Their relationship to vocational choice. Vocational Guidance Quarterly, 1969, 18(2), 91-98.
- Holley, J. L. An analysis of personality needs and certain background factors which may influence career choice of women business education majors. (Doctoral dissertation, University of Mississippi, 1969). (University Microfilms No 70-11, 486)
- Hsu, C. C. The validation of hypotheses derived from a model of vocational decision-making. (Doctoral dissertation, North Carolina State University at Raleigh, 1970). (University Microfilms No. 71-13, 971)
- Hubbard, H. G. Career choices of successful business executives. Personnel and Guidance Journal, 1966, 44, 147-152.
- Hutson, P. W. Vocational choices: 1930 and 1961. Vocational Guidance Quarterly, 1962, 10, 218-222.
- Impellitteri, J. T., & Kapes, J. T. The measurement of occupational values. University Park, Pa.: Department of Vocational Education, Vocational Development Study, Pennsylvania State University, Monograph No. 3, 1971.
- Ivey, A. E., & Morrill, W. H. Career process: A new concept for vocational behavior. Personnel and Guidance Journal, 1968, 46(7), 644-649.
- Jordan, M. F., et.al. Aspirations and capabilities of rural youth in relation to present and projected labor market requirements. Department of Agriculture, Economic Development Division, Arkansas Agricultural Experiment Station, May 1967.
- Karman, F. J. Women: Personal and environmental factors in role identification and career choice. (Doctoral dissertation, University of California, Los Angeles, 1972). Dissertation Abstracts International, 1972, 33, 1440. (University Microfilms No. 72-25, 789)

- Kohen, A. I. Career thresholds: A longitudinal study of the educational and labor market experience of male youth (Vol. 4). Columbus: Center for Human Resource Research, Ohio State University, 1973. (ERIC Document Reproduction Service No. ED 074 280) (a)
- Kohen, A. I. Determinants of early labor market success among young men: Race, ability, quantity and quality of schooling. (Doctoral dissertation, Ohio State University, 1973). (University Microfilms No. 73-18, 917) (ERIC Document Reproduction Service No. ED 076 845)
- Kohen, A. I., & Parnes, H. S. Career thresholds: A longitudinal study of the educational and labor market experience of male youth. (Vol. 3). Columbus: Center for Human Resource Research, Ohio State University, May 1970.
- Land, K. C. Significant others, the self-reflexive act and the attitude formation process: A reinterpretation. American Sociological Review, 1971, 36, 1085-1098.
- Levy, B. The school's role in the sex-role stereotyping of girls: A feminist review of the literature. Feminist Studies, 1972, 1(1), 5-23.
- Lionberger, H. F., & Heifner, B. S. Occupational views and decisions of Missouri college agricultural students: A panel study of 1964 freshmen-1968 seniors. Bulletin No. 967. Department of Rural Sociology: Missouri College of Agriculture, August 1969.
- Lips, O. J. An empirical test of Hershenson and Roth's vocational decision process model. (Doctoral dissertation, Iowa State University, 1971). (University Microfilms No. 72-5225)
- Lipsman, C. K. Maslow's theory of needs in relation to vocational choice by students from lower socio-economic levels. Vocational Guidance Quarterly, 1967, 15(4), 283-288.
- Lonsway, F. A. The developing literature on occupational choice. High School Journal, 1969, 52(5), 260-269.
- Lungstrum, R. M. Selected factors related to occupational preference of high school students enrolled in vocational education programs in the Wichita public schools. Urbana: Department of Vocational and Technical Education, University of Illinois, 1973. (ERIC Document Reproduction No. ED 074 267)
- Mahlstede, J. P., et.al. Project in research and development in vocational and technical education--non-metropolitan areas. Appendix of final research reports. Ames, Iowa: Iowa State University of Science and Technology, November 1966. (ERIC Document Reproduction Service No. ED 011 069)
- Marr, E. Vocational maturity and specification of a preference. Vocational Guidance Quarterly, 1969, 18(1), 45-47.
- Marriott, S. Aspiration and determination in the career choices of adolescent boys. Education Review, 1969, 21(2), 138-146.
- McClure, L., & Buan, C. (Eds.). Essays on career education. Washington, D.C.: U.S. Government Printing Office, 1973. (ERIC Document Reproduction Service No. ED 074 220)

- McDaniels, C. Too young to choose. Vocational Guidance Quarterly, 1968, 16(4), 242-249.
- National Board on Graduate Education. Doctorate manpower forecasts and policy. No. 2. Washington, D.C., November 1973.
- National Research Council. Career patterns report no. 1: Profiles of Ph.D.'s in the sciences; summary report on follow-up of doctorate cohorts, 1935-60. Washington, D.C.: National Academy of Sciences, 1965.
- National Research Council. Career patterns report no. 2: Careers of Ph.D.'s: Academic versus non-academic; a second report on follow-up of doctorate cohorts, 1935-1960. Washington, D.C.: National Academy of Sciences, 1968.
- Olien, C., & Donohue, G. A. Occupational and educational attainment of women as related to high school occupational expectations and background factors. (VT 007 778)
- O'Reilly, P. A. Predicting the stability of expressed occupational choices of secondary students. University Park, Pa.: Department of Vocational Education, Vocational Development Study, Pennsylvania State University, Monograph No. 15, 1973. (ERIC Document Reproduction Service No. ED 078 228)
- Parnes, H. S., Fleisher, B. M., Milgus, R. C., Spitz, R. S., & Associates. The pre-retirement years: A longitudinal study of the labor market experience of men. Manpower Research Monograph, 1970, 15(1).
- Paulsen, D. L. The career commitment of twelfth grade girls. (Doctoral dissertation, Yale University, 1967). (University Microfilms No. 68-5200)
- Péck, R. F. Distinctive patterns of valued career attributes in eight countries. Proceedings of the 81st Annual Convention of the American Psychological Association, Montreal, Canada, 1973, 8, 315-316.
- Peterson, M. Application of vocational development theory to career education. Columbus, Ohio: The Center for Vocational and Technical Education Information Analysis Series, 1973, No. 80.
- Petrik, N. P. Socio-economic status, vocational interests and persistence in selected college curricula. Vocational and Guidance Quarterly, 1967, 16(1), 39-44.
- Picou, J., Tracy, G. S., & Hernandez, P. Models of the occupational process: Rural-urban variations. Department of Agriculture: Ohio State University and Louisiana State University, Report No. S-31, 1970.
- Poulin, D. A. The effects of career orientation on vocational interests and occupational plans. (Doctoral dissertation, University of Connecticut, 1972). (University Microfilms No. 72-32, 190)
- Purdue Opinion Panel. Vocational plans and preferences of adolescents. Report of poll no. 94. Lafayette, Ind.: Measurement and Research Center, Purdue University, 1972.
- Reeder, W. W., et.al. Factors influencing occupational decisions in a low-income area. Department of Agriculture, Economic Development Division, New York Agricultural Experiment Station, October 1965.

- Roe, A. Early determinants of vocational choice. Journal of Counseling Psychology, 1957, 4, 212-217.
- Rosenthal, E. M. Greener pastures: Why employees change jobs. Personnel, 1969, 46(1), 22-30.
- Schoenfeld, E. Status and career decision: An analysis of the time dimension. Sociological Quarterly, 1972, 13(4), 86-97.
- Segal, S. J. A psychoanalytic analysis of personality factors in vocational choice. Journal of Counseling Psychology, 1961, 8, 202-210.
- Sewell, W. H., Haller, A. O., & Portes, A. The education and early occupational attainment process. American Sociological Review, 1969, 34(1), 82-92.
- Sjogren, D. Review and synthesis of research on occupational adaptability. Columbus: Center for Vocational and Technical Education, Ohio State University, 1971. (ERIC Document Reproduction Service No. ED 057 182)
- Soper, E. L. A study of factors influencing the post-secondary educational and vocational decisions of Utah high school students. Final report. Salt Lake City: Utah State Board of Education, 1971. (ERIC Document Reproduction Service No. ED 056 815)
- Stewman, S. An organizational approach to occupational mobility. (Doctoral dissertation, Texas A & M University, 1973). (University Microfilms No. 77843)
- Strahl, G. T. The relationship of centrality of occupational choice to sex, parental identification, and socioeconomic level in university undergraduate students. (Doctoral dissertation, Michigan State University, 1967). University Microfilms No. 68-7971)
- Super, D. A theory of vocational development. American Psychologist, 1953, 8(4), 185-190.
- Super, D. E. Vocational development theory in 1988: How will it come about? Counseling Psychology, 1969, 9(1), 9-13.
- Super, D. E., et.al. Floundering and trial after high school. Monograph IV, No. 1393. Horace Mann-Lincoln Institute of School Experimentation, Career Pattern Study, 1967. (ERIC Document Reproduction Service No. ED 032 646)
- Sussman, M. B., & Cogswell, B. E. Family influences on job movement. Human Relations, 1971, 24(6), 477-487.
- Tatum, Jr., J. P. Variables related to the educational-vocational decision-making of high school seniors. (Doctoral dissertation, Colorado State College, 1967). (University Microfilms No. 68-463)
- Tiedeman, D., et.al. Thought, choice and action: Processes of exploration and commitment in career development (Vol. 2). Graduate School of Education: Harvard University, August 1967. (ERIC Document Reproduction Service No. ED 050 294)

- Tillery, D., Donovan, D., & Sherman, B. SCOPE four-state profile, grade twelve 1966, California, Illinois, Massachusetts, North Carolina. Center for Research and Development in Education: University of California; New York: College Entrance Examination Board, 1966. (ERIC Document Reproduction Service No. ED 016 998) (a)
- Tillery, D., Donovan, D., & Sherman, B. SCOPE state profile--grade twelve, 1966, Massachusetts. A descriptive report. Berkeley: Center for Research and Development in Higher Education, University of California; New York: College Entrance Examination Board, 1966. (ERIC Document Reproduction Service No. ED 014 739) (b)
- Tillery, D., Donovan, D., & Sherman, B. SCOPE: Grade eleven profile 1968 questionnaire selected items. Berkeley: Center for Research and Development in Higher Education, University of California; New York: College Entrance Examination Board, 1969. (ERIC Document Reproduction Service No. ED 035 000)
- Tomeh, A. K. The impact of reference groups on the educational and occupational aspirations of women college students. Journal of Marriage and the Family, 1968, 30(1), 102-110.
- U.S. Employment Service. Relating general educational development to career planning. Washington, D.C.: U.S. Department of Labor, 1971.
- Vroom, V. H. Organizational choice: A study of pre- and postdecision processes. Organizational Behavior and Human Performance, 1966, 1(2), 212-225.
- Wallace, J. L., & Leonard, T. H. Factors affecting vocational and educational decision-making of high school girls. Journal of Home Economics, 1971, 63(4), 241-245.
- Walsh, B. W. Monograph ten. Theories of person-environment interaction: Implications for the college student. Iowa City: The American College Testing Program, 1973.
- White, A. E. Parent-child interaction and vocational development--a review of theory and research. Perspectives on Counseling, 1966, 1(1). (ERIC Document Reproduction Service No. ED 012 949)
- Willmarth, J. G. Factors affecting the vocational choice of women of different ages selecting clerical and secretarial occupations. (Doctoral dissertation, Washington State University, 1969). (University Microfilms No. 6914, 477)
- Wigent, P. A. A study of personality variables related to career decision-making abilities of community college students. (Doctoral Dissertation, University of Michigan, 1972). (University Microfilms No. 72-29, 238)
- Zeller, F. A., et.al. Career thresholds: A longitudinal study of the educational and labor market experience of male youth (Vol. 2). Columbus: Center for Human Resource Research, Ohio State University, October 1970. (ERIC Document Reproduction Service No. ED 047 104)

ANNOTATED MATERIALS

UNPUBLISHED MATERIAL

- Barnett, R. C., & Baruch, G. Occupational and educational aspirations and expectations: A review of empirical literature. Radcliffe Institute and Worcester Foundation for Experimental Biology, 1974 (mimeographed).
- Featherman, D. L. Farm, rural and urban backgrounds of rearing and socioeconomic career achievements in metropolitan stratification systems. Paper presented at the Annual Meeting of the Rural Sociological Society, Washington, D.C., 1970.
- Folson, Jr., C. The validity of Holland's theory of vocational choice. Unpublished doctoral dissertation, University of Maine, 1971. No. 72-5626.
- Fulmer, J. L. Conclusions and recommendations from "Careers for youth survey-Georgia, 1971-1974," for the State Department of Education of Georgia (mimeographed).
- Sorensen, A. B. A model for occupational careers. Paper presented at the annual meeting of the American Sociological Association, New Orleans, August 1972.
- Tyler, L. E. Personal views of possibilities in three cultures. Paper presented at the American Psychological Convention, San Francisco, September 1, 1968.

UNPUBLISHED MATERIAL

- Kranzow, G. W. Decisiveness increases beyond the .05 level in peer group counseling project using 'deciding' materials with under-achieving students. Gurnee, Ill.: School District of Lake County, Title III ESEA Special Education Project, February 1973, (Mimeographed).
- Mortimer, J. T. Fathers' work and sons' occupational value orientations. Paper presented to the American Sociological Association, New York City, August 1973.
- Otto, L. B., Haller, A. O., Meier, R. F., & Ohlendorf, G. W. High school students' levels of occupational aspiration: Variations by sex, socio-economic status, and grade in school. Paper presented at the Rural Sociological Society, College Park, Maryland, August 1973.
- Picou, J. S., & Evans, W. C. The occupational choice process: A reconceptualization. Paper presented to the annual meeting of the Rural Sociological Society, Denver, August 1971.
- Postun, D. L. Occupational differentiation by sex in rural American: An ecological interpretation. Paper presented to the annual meeting of the Rural Sociological Society, Denver, August 1971.
- Vetter, L. Focus on future life styles of/for women: Counseling implications. Attitudes on future plans of junior and senior high school girls. Paper presented at the convention of the American Personnel and Guidance Association, New Orleans, March 1970.
- White, W. T. A relationship between sex identity and career choice. Paper presented to the annual meeting of the Southern Sociological Society, Atlanta, April 1973.

APPENDIX C

ANNOTATIONS
(by categories of:)
BOOKS
JOURNAL ARTICLES, MONOGRAPHS, AND REPORTS
UNPUBLISHED MATERIAL

Prepared by
Barbara A. Sanderson
D. Randy Black
Craig K. Ewart
JoAnn L. Greene

C-0

Astin, H. S. and Bisconti, A. S. Career plans of college graduates of 1965 and 1970. Bethlehem, Pennsylvania: CPC Foundation, 1973.

Respondents:

Number: 34,559 (1965 class--19,273 and 1970 class--15,286)
Sex: male and female
Grade: college graduates
Location: colleges and universities throughout the country
Dates Data Gathered: 1961, 1966, and 1970
Selection: students who had graduated from college in a four-year period between 1961-1965 and 1966-1970, and completed a questionnaire as entering freshmen and after graduation regarding their future educational and vocational plans.

Objectives: To examine the career plans of two groups of college students from the time of matriculation (1961 and 1965) to graduation (1965 and 1970). The primary focus was on the post-senior year career plans and chosen work settings. Also, the plans of recipients of bachelor's degrees in different undergraduate majors were examined in order to determine their expectations with respect to the world of work. Of special concern was the assessment of the vocational interests of recent liberal arts graduates who, in previous years, often entered occupations unrelated to their major.

Methodology: A questionnaire developed by A. W. Astin was used as a pre- and post-measure to assess changes in values, goals, and aspirations (i.e., future educational and vocational plans) of two groups of college students over two different four-year periods (1961-1965 and 1966-1970 respectively).

Results and Conclusions: The data indicated that the career plans of college graduates in 1970 were quite similar to those graduating in 1965. The most notable difference was the increase in the proportions of men choosing business as a career--14% (23,731) in 1965 and 18% (45,437) in 1970--and then going on to accept jobs in that field upon graduation from college--20% (15,425) in 1965 and 23% (31,758) in 1970. In addition, slightly more than 50% of the male graduates continued to select business, teaching, the professions, and engineering, making them again the most popular choices. Teaching remained the most popular choice for females (approximately 50% making this selection). Males tended to remain in the prestigious careers and to move toward them; e.g., of those choosing initially to be business salesmen, 39% of the 1965 class and 46% of the 1970 class shifted to the category of business executive. Women in both classes tended to shift out of masculine-associated careers and to persist only in the fields of teaching (69% in 1965 and 74% in 1970) and in non-medical health professions (44% in 1965 and 54% in 1970).

Men tended to select work settings congruent with their career choices, especially those majoring in business, engineering, education, and the professions. Careers such as business executive became more popular, especially among those majoring in engineering (6% in 1965 and 10% in 1970) and liberal arts (17% in 1965 and 25% in 1970), and business was the most likely career choice of social science majors without advanced degrees (20% in 1965 and 15% in 1970).

The anticipated primary first employers of men were private companies (31% or 48,964 in 1965 and 30% or 69,618 in 1970) and government (20% or 31,855 in 1965 and 23% or 55,300 in 1970). The largest proportion of women anticipated employment in educational settings and the proportion going into private companies was 13% (19,769) in 1965 and 16% (37,051) in 1970. Government attracted 11% of the women in both classes (16,951 in 1965 and 24,403 in 1970).

Bachman, J. G. Youth in transition. Volume II. The impact of family background and intelligence on tenth-grade boys. Institute for Social Research: University of Michigan, 1970.

Respondents:

Number: 2,213
Sex: male
Age: 10th grade
Residence: nationwide
Date Data Gathered: 1966
Selection: 87 public high schools

Objectives: This is a report of the findings from the first collection of data of the Youth in Transition project, a longitudinal study of high school boys. It explores the relationship between family background and aptitudes and abilities; affective states; self-concept; values and attitudes; and plans and behaviors. Dimensions of family background include socioeconomic level, number of siblings, broken home, interpersonal relationships with parents, religious preference, parents' political preference, community size, and race.

Methodology: The sample consisted of 2,213 tenth-grade boys located in 87 public high schools selected using multi-stage sampling design. The data collection involved a personal interview and a battery of group-administered tests and questionnaires. The interview was about two hours in length and the group tests took about half a day.

Results and Conclusions: The report discussed the findings on the influence of the various dimensions of family background. The dimensions which proved to be most significant were family socioeconomic level and interpersonal relations between parents and son. Analysis indicated that SEL showed a positive relationship with intelligence ($r = .45$), reading ability ($r = .41$ and $.45$), self-concept of school ability ($\eta = .33$), grades ($\eta = .26$), college plans ($\eta = .20$), and occupational aspirations ($\eta = .37$). Interpersonal relations between parents and son were measured using 10 items on parental punitiveness and 11 items on closeness to parents and feeling that parents were reasonable. Reports of good family relationships were related with a number of dimensions including high self-esteem ($\eta = .36$), positive attitudes toward school ($\eta = .35$), and feelings of personal efficacy ($\eta = .29$).

Intelligence is related to family background, but is also interpreted as an intervening variable which can operate independently or modify some of the effects of family background. Intelligence was correlated to grades in school ($\eta = .36$), self-concept of school ability ($\eta = .46$), and future plans ($\eta = .30$).

Bachman, J. G., Kahn, R. L., Mednick, M. T., Davidson, T. N., and Johnston, L. D. Youth in transition: Volume I. Blueprint for a longitudinal study of adolescent boys. Institute for Social Research: University of Michigan, 1967.

The objective of this book is to present the rationale and methodology for the Youth in Transition project, a six-year nationwide longitudinal study of adolescent boys. It describes the planning, goal-setting, specification of research design and procedures, selection of sample, and collection of initial data.

The purpose of the study was to explore the effects of social environments on adolescent boys. It used a conceptual framework based on the relationships between the person, environment, and person-environment interaction. The focus was on the dimensions of mental health, self-concept, values and attitudes, and educational and occupational plans and behaviors.

The sampling design used a clustered sampling procedure to select 2,200 boys from 87 public schools throughout the country. Data were to be gathered at three points in time: October, 1966 (tenth grade); April, 1968; and November, 1969. A combination of standardized tests, questionnaires, and interviews was used to measure characteristics of the boys and their environments. These data were to be analyzed to relate growth and change of individuals to differences within and between school and work environments.

Bailey, L. Career education: New approaches to human development.
Bloomington, Illinois: McKnight Publishing Co., 1973.

This book begins with a succinct analysis and synthesis of educational criticisms and recent responses to outside forces. The core of the book entails brief historical and thorough theoretical treatments of three interrelated matters: career development, the foundations and evaluation of career education, and models for career education and curriculum development. The book concludes with a similar analysis of change theory applicable to education and with recommendations for the several kinds of people who can contribute to a self-starting organization, committed to providing career education experiences.

Becker, G. S. Human capital. New York: Columbia University Press, 1964.

This book discusses the theory of investment in human capital and reports on empirical studies on gains from high school and college education and on the life-cycles of earnings.

Schooling, on-the-job training, medical care, migration, and searching for information about prices and incomes are described as investments in human capital because they influence future monetary and psychic income by increasing the resources of people. But there are costs to these investments. School expenses include tuition, fees, books, supplies, and unusual transportation and lodging expenses. An individual may work while in school, but his earnings are generally less than if he were not in school. Foregone leisure should also be considered. There is also high uncertainty and risk.

Expected returns can motivate investment in people. Young people can collect returns over more years than an older person and may be more motivated. Women expect to spend less time in the labor force than men and have less incentive to invest in skills. Schooling is easiest to measure in terms of rate of return on investment, but there are difficulties in attributing differences to education. For example, college graduates tend to be more capable than high school graduates. The author reviews several studies with controls for variables such as rank in high school, intelligence, and father's occupation, and concludes that college education does explain most of the variance and that rate of return is over 10 percent. He also shows how the gains from college for the periods studied were lower for college dropouts, nonwhites, women, and rural persons.

In terms of earning cycles most investments in human capital lower earnings at younger ages due to costs and raise earnings at older ages.

Berdie, R. G. and Hood, A. Decisions for tomorrow: Plans of high school seniors for after graduation. Minneapolis: University of Minnesota Press, 1965.

Respondents:

Number: 44,756
Sex: male and female
Age: high school seniors
Residence: Minnesota
Date Data Gathered: 1961
Selection: all seniors in the state of Minnesota

Objectives: To determine the relationship of post-high school plans of seniors to ability, attitudes, and socioeconomic, cultural, and family conditions. Also to find out what changes occurred between 1950 and 1961 in plans and how this was related to changes in their schools' guidance programs and communities.

Methodology: A questionnaire was given to all graduating seniors in 1961. A follow-up was done on a sample of 2,103 of these a year after graduation.

Results and Conclusions: Post-high school plans were closely related to ability, economic and cultural status, sex, area in which students lived, family attitudes, and personal values and aptitudes. Some evidence suggested that at least for some groups college attendance was increasingly related to ability and high school achievement and decreasingly related to economic status. Financial need was a consideration of 32% of the high-ability students who did not plan to attend college. The proportion of high school graduates who planned to attend college increased from 35% in 1950 to 41% in 1961.

Berg, I. Education and jobs: The great training robbery. Boston: Beacon Press, 1971.

The author challenges the assumption that more education is better and contends that an increasing number of persons are in jobs that utilize less training than they have. He uses empirical data from economics, business, and other fields to support his views.

There has been a considerable rise in the educational attainments of the work force and both economics and sociology have put great weight on education in their studies of economic growth and social mobility. Employers are a major force which contributes to the emphasis on education. Employers assume that better-educated employees will be more disciplined, efficient, and promotable. They assume that more highly trained people are needed because of technological changes, but studies are cited which show that this is not true for most jobs. Also, it has not been verified that "better-educated" workers are superior to those with less education in areas such as grievance patterns, turnover, productivity, absenteeism, and worker attitudes. In terms of promotability, only a small percentage are promoted to high ranks. Also, those who are highly qualified often change companies and turnover is positively related to education. Often higher education is an important factor in accounting for dissatisfaction among workers.

The author concludes that employers should carefully assess their needs before raising educational requirements. Also, education should be reformed to bring a balance between "too much" for some and "not enough" for others.

Blau, P. M., and Duncan, O. D. The American occupational structure.
New York: Wiley, 1967.

Respondents:

Number: 20,700

Sex: male

Age: 20 to 64

Residence: nationwide

Selection: random sample; information was collected as an adjunct to the monthly Current Population Survey of the United States Bureau of the Census

Objective: To present a systematic analysis of the American occupational structure by reporting on the patterns of occupational movements, the conditions that affect them, and some of their consequences.

Methodology: The CPS interview collected information on occupation, education, income, and personal characteristics. Supplementary information on background was gathered using a questionnaire which respondents filled out and mailed in. Completed questionnaires were returned by about five-sixths of these men; variables included race, migration patterns, number of siblings, birth order, and marriage status. The path analysis technique was used to interpret the results.

Results and Conclusions: The authors found that a man's social origins exert a considerable influence on his chances of occupational success, but his own training and early experience exert a more pronounced influence on his success chances. The zero-order correlations with occupational status are .32 for father's education, .40 for father's occupation, .60 for education, and .54 for first job. Most of the influence of social origins on occupational achievements is mediated by education and early experiences, although social origins also have some continuing impact. Education exerts the strongest direct effect on occupational achievements (path co-efficient = .39), with the level on which a man starts his career as second ($p = .28$).

Social origin, education, and career beginning account for somewhat less than half the variance in occupational achievement. As a man gets older his past career becomes more important, increasing in influence from .30 for age 30 to .89 when he is 60.

Results also show that a Negro's chance of occupational success are less than a white's; the chances of occupational success of Southerners is less than for Northerners; and the occupational achievements of sons of immigrants are not inferior to those of native parentage. In regard to the influence of family life, men from large families are less likely to achieve high status in their careers than those from small families; men who are the oldest or youngest child in a family have more successful careers than those in intermediate positions; broken families are associated with lower occupational achievements for both the children and the husband; and educational encouragement by the family favors occupational success.

- * Borow, H. Career development in adolescence. In J. F. Adams (Ed.),
* Understanding adolescence. Boston: Allyn and Bacon, 1963, pp.
421-452.

This chapter surveys theories and principles of vocational choice and career development, including trait-measurement theory and the works of Ginzberg, Super, and Holland. Also presented is an historical overview of work expectations for youth and a discussion of important concepts in career development, childhood socialization, and the outlook on the nature and stability of adolescent occupational goals.

Caplow, T. The Sociology of Work. Minneapolis: University of Minnesota Press, 1954.

Objective: To present factors which influence and limit (restrict) an individual's vocational choice; including the effects of parents, formal education, and vocational guidance. Also, in this chapter a developmental model for vocational decisions is reviewed.

Results and Conclusions: Parental influence may result in the expectation that the child should inherit the father's occupation, or be expected to seek and/or obtain a certain occupational level desired by the parents. Another principal device for the limitation of occupational choice is the educational system. It does this in two ways: first, by forcing the student who embarks upon a long course of training to renounce other careers also requiring extensive training; and second, by excluding from training and eventually from occupations those students who lack either the intellectual qualities or the social characteristics (such as ethnic background, wealth, appropriate conduct, previous education) which happen to be required. Also, the student is required to make several choices throughout his academic career when he is still remote from the world of work. These choices may well have an irrevocable impact on limiting his career choice. Vocational guidance is another factor that may limit vocational choice. The counselor may employ test batteries in two legitimate ways: first, to find and eliminate those candidates with a high probability of failure in certain vocations; and second, to select those with a high probability of success. However, an intermediate score on these tests tells very little about what the individual may do, which often results in the counselor relying on his own hunches or guesses to narrow vocational decisions. Also, a further limiting factor is that information or the lack of it regarding vocations may be of such a nature as not to be usable by the students, thus possibly adversely affecting a future career choice.

The theory of vocational choice presented indicates that it is a process which extends over a long period of time. The choice process is divided into three periods: the period of fantasy choices, the period of tentative choices, and the period of realistic choices. Each period is explained and further detail provided.

Crites, J. O. Vocational psychology. New York: McGraw-Hill, 1969.

A primary purpose of this book is to appraise and evaluate empirical studies and theoretical statements in the field of vocational psychology and to determine, by generally accepted criteria of sound methodology and principles of scientific exploration, what reliable behavioral laws apply to vocational phenomena and how useful contemporary conceptual schemata are in accounting for them. The work of Roe and Super is emphasized. Another purpose of this book is to further codify and define vocational psychology as a field of scientific research. The book is divided into two main parts, one on vocational choice and the other on vocational adjustment, which are assumed to be the behavioral levels of analysis of greatest importance and interest in vocational psychology. Throughout the book, the frame of reference adopted in organizing, analyzing, and interpreting vocational psychology is "behavior theoretic" and "logical positivist" points of view. Within and between chapters, an attempt is made to explicate the meaning of concepts by specifying the procedures used to measure them, to classify variables by type and delineate the relationships among them, and to juxtapose theory and research so that the status of each might be meaningfully assessed. Data on the vocational choices of college male and female freshmen are reported in chapter 4. A diagnostic system for problems in vocational choice is presented in chapter 7 and suggestions for further research based on the studies reviewed in earlier chapters are discussed in chapter 13.

In summarizing research on vocational choice, the author points out that we know considerably more about the choice act per se than we do about the related phenomena of choice attitudes and competencies, indices of vocational maturity, and indecision and unrealism in choice. The two principal reasons are: First, research on the choice act dates back to the beginning of the matching-men-and-jobs approach in vocational psychology, whereas studies of the development of vocational behavior are relatively recent in origin, most of them having been launched since 1950. The results of the latter are only now appearing in the literature, and many are still incomplete and unreplicated. Thus, in contrast to the choice act, our knowledge of vocational development is uncertain and uncodified. Second, most of the research in the field has been in normal choice behaviors. What fragmentary evidence we have on indecision and unrealism has come largely from counseling studies, in which comparisons of individuals who have these problems with those who do not have been made.

His summary of research in vocational adjustment reflects both the strengths and weaknesses of the studies which have been conducted on vocational motivation, success, satisfaction, and adjustment. He feels the strengths lie in the great number of investigations which have been made of most of these phenomena, particularly success and satisfaction; the weaknesses appear in the often expedient and nontheoretical nature of the studies. The result is that, although there may be a large body of empirical data on certain aspects of vocational adjustment, there is little or none on others. Moreover, that which is available is difficult to fit into a psychologically meaningful conceptual schema. When an attempt is made to do this, the lacuna in our knowledge and understanding of how and why workers adjust to their jobs as they do becomes painfully apparent.

The author proposes a classification schema adopted from Edwards and Cronbach to organize research needs in a manner which may lead to new lines of inquiry. The four kinds of research which can be conducted are:

1. Survey research: to discover relevant variables for more systematic study and to establish parameters of known variables.
2. Technique research: to develop methods, whether test or nontest, for making observations which are quantifiable.
3. Theoretical research: to test hypotheses which have been formulated to account for empirical laws.
4. Applied research: to determine what course of action should be taken.

In the last section of the last chapter of the book, a possible model for theory construction in the field is presented, which explicates the use of the intervening-variable construct as well as other principles in the explanatory process. Some general considerations and issues upon which the model is predicated are dealt with first, and finally some implications of the model for the construction of a comprehensive theory of vocational behavior and development are extrapolated.

Crites, J. O. The maturity of vocational attitudes in adolescence.
Iowa City: University of Iowa, 1971.

Objectives: This book reports on research done on vocational maturity using the Attitude Scale of the Vocational Development Inventory. This instrument focuses on the following variables: (1) involvement in the process of vocational choice, (2) orientation toward the problem of vocational choice, (3) independence in decision-making, (4) preferences for factors in vocational choice, and (5) conceptions of vocational choice. Results of about 50 studies are summarized. They are divided into the categories of survey, technique, theoretical, and applied research.

Results and Conclusions: Findings of the various studies include the following:

1. There is a progressive increase in vocational maturity from the lower to the higher grades;
2. There were "stages" in the item curves, principally at two points between the 6th and 7th grades and the 9th and 10th grades;
3. Students in the more vocationally oriented courses of study were less mature;
4. Adolescents from less favored socioeconomic circumstances and/or minority, ethnic, and racial groups were less vocationally mature;
5. Vocational maturity was correlated to parental educational level ($r = .27$ and $.39$) but not to socioeconomic status ($r = -.13$ and $-.02$), number of siblings ($r = -.23$) or previous work experience ($r = 0.07$);
6. Intelligence and scholastic aptitude are positively correlated ($.30 - .35$) with vocational maturity;
7. The more vocationally mature students were more task-oriented and better adjusted;
8. Of the studies on the effects of counseling on vocational maturity, three had positive findings and four reported negative results.

Davis, J. A. Undergraduate career decisions: Correlates of occupational choice. Chicago: Aldine, 1965.

Respondents:

Number: 33,982

Sex: male and female

Age: graduating college seniors

Residence: nationwide

Date Data Gathered: 1961

Selection: sampled from 135 colleges and universities

Objectives: To examine: (1) the general process of career decision, (2) factors associated with change and stability, and (3) trends for particular occupations.

Methodology: A 19-page questionnaire was given on educational and vocational plans, college experiences, personality characteristics, social values, and background information. The occupational areas used in the analysis were physical sciences, biological sciences, social sciences, humanities, engineering, medicine, law, education, business, and other professions.

Results and Conclusions: For entering freshmen only 8% were undecided and the distribution of student preferences was close to that for the labor force for college graduates. Also, there is already a strong relationship between occupational choice area and variables such as sex, academic performance, occupational values, and background. The author concludes that selection of undergraduate major is a critical decision point for a person's vocational future but that the decision process is well under way by the time the student enters college. Furthermore, students are realistic in their choices and are already oriented to a general type of occupation, although the specific choice may be hazy or unstable.

In terms of stability of occupational choice, the finer the classification of choices the greater the difference between freshmen and senior choices. Using broad categories, 37% shifted from one category to another but the authors estimated that it was closer to 50% since 8% had no initial preference and one category was very broad. There were definite trends in the different areas and results are presented on how personal characteristics are related to turnover in career fields. For example, 31% of the women who were in other fields as freshmen shifted into education by their senior year. In general, the author found that characteristics that are associated with a given field among the entering students tend to be the same characteristics that discriminate between "loyalists" and "defectors" and that shifts tend to accentuate the occupational differences already present.

The book also presents a detailed description of the type of student who enters each of the occupational areas. For example, the most differentiating factors for education were: being female ($Q = -.749$), not wanting to make a lot of money ($Q = -.517$), and wanting to work with people ($Q = +.468$).

Duncan, O. D., Featherman, D. L., and Duncan, B. Socioeconomic background and achievement. New York: Seminar Press, 1972.

Respondents:

Number: 20,700

Sex: male

Age: 20-24

Residence: nationwide

Date Data Gathered: 1962

Selection: representative sample, information collected through the Current Population Survey by the U.S. Bureau of Census

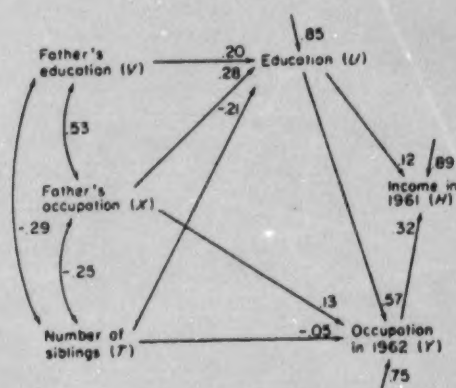
The data described above (OCG data set) was the major source of information. The following data sets were also drawn upon:

- National Opinion Research Center - Current Population Survey by the Bureau of Census - 1964
- Detroit Area Study - 1966
- Family Growth in Metropolitan America - 1957, 1957-1967
- WISC Data - University of Wisconsin - 1957, 1964-1965
- Survey Research Center - 1957
- MICH - 1957

Objectives: To explore the degree to which achieved occupational status depends on the socioeconomic level of the family of orientation, the extent to which education serves as an intervening variable in the transmission of status, the extent to which it introduces variability into occupational achievement that is independent of origins, and the contribution of certain other background factors to level of status attained in adulthood.

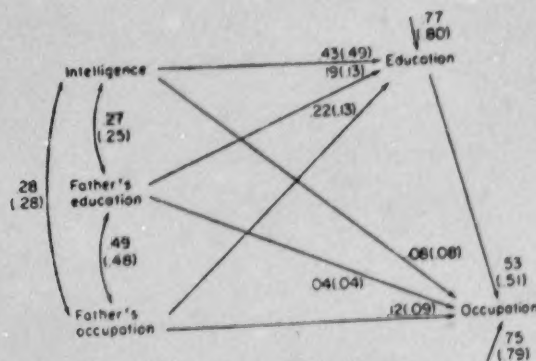
Methodology: No new data were collected, but rather additional tabulations and computations were done with existing information. Path analysis models were used to show the relationships among variables and path coefficients show the strength of the relationship.

Results and Conclusions: Below is the basic model presented on the process of achievement based on the OCG data set for non-Negro men with nonfarm backgrounds, 35-44 years old.



C-16

The model below shows the relationship between ability and achievement. The path coefficients were estimated based on the NORC-CPS data and the DAS data (shown in parentheses).



Other findings include these:

- National origin is not a major factor in achievement for whites.
- Blacks are disadvantaged in both educational and occupational achievement.
- Sex of siblings seems irrelevant.
- Rearing in a broken family is somewhat unfavorable for occupational achievement.
- Occupational aspirations and occupational plans are correlated with family background.
- Wives have only a slight effect on husband's occupational attainment.
- A mother's socioeconomic characteristics, intelligence, and personality account for only 5.7% of variance in aspirations for their young children.
- The occupational level at which a man begins his career is predictive of later attainment.
- Migration is related to occupational success.
- Men with intact marriages have a higher status than those divorced or separated.
- Number of children is negatively correlated with socioeconomic status.
- Occupational status relates in a curvilinear way to the length of the interval from marriage to birth of the first child.

Freeman, R. B. The market for college-trained manpower: A study in the economics of career choice. Cambridge: Harvard University Press, 1971.

This book is a study of the changing labor market for high-level manpower in the United States. It focuses on the career decisions of college students, with particular emphasis on scientific and related specialties. Part of the book is based on econometric model building and part reports on a survey of male college students.

An economic theory of career decision making is presented which assumes that within the constraints set by the market and by personal abilities, the individual selects the occupation that maximizes his utility function. Schematically, the career decision is made as follows: (1) On the basis of market wages and ability endowments, the individual calculates expected lifetime income for all relevant occupations; (2) He compares the utility of the commodities which can be purchased with this income and with potential nonwage income to the nonmonetary value of working in each of the careers; (3) he selects the career which offers the greatest total utility.

The author presents some market models and then applies these models to the developments in the postwar market for college graduates. This was based on estimates of enrollment and graduation compiled by the Office of Education and salary figures gathered by placement offices, professional societies, and federal agencies.

In addition, a questionnaire was mailed to 11,000 male students to which there was a 25 percent response rate. The survey was used to gather information on career plans, labor market information, and the economic factors that affect students' decisions. According to the survey, 60 percent of the undergraduates and 42 percent of the graduate students were subject to change in their career choice. Most students expressed satisfaction with information received. Only 16 percent of the undergraduates and 12 percent of the graduate students considered available information inadequate. Students were also fairly realistic about expected incomes.

The author presents a number of other conclusions and policy recommendations.

Ginzberg, E., Ginsberg, S. W., Axelrod, S., and Herma, J. L. Occupational choice: An approach to a general theory. New York: Columbia University Press, 1951.

The major objective of the authors is to develop a comprehensive theory of occupational choice determination which will permit the identification and analysis of the major factors in the vocational decision making of the individual. Part I focuses on research into the determinants of occupational choice. This forms part of a broader investigation into the economics of human resources. A larger investigation focuses on discovering how to reduce the waste that is so widespread in both individual and social adjustment to work. The concluding chapter calls attention to important policy implications with respect to the conservation of human resources which flow from general theory of occupational choice formulated by the authors.

Specific reference is made to the influences on the process of decision-making of the culture, family, school, and vocational guidance counselor.

There are three key elements of the theory. They are: occupational choice is a decision-making process that extends from pre-puberty until the late teens or early twenties when the individual makes a definitive occupational commitment; many educational and other preparatory and exploratory decisions along the way have the quality of irreversibility; and the resolution of the choice process always ends in a compromise, since the individual seeks to find an optimal fit between his interests, capacities, values, and the world of work.

Gribbons, W. D. and Lohnes, P. R. Emerging careers. New York: Teachers College Press, 1968.

Respondents:

Number: 111 (57 boys, 54 girls)
Sex: male and female
Age: 144 to 190 months, average 160.3 months
Residence: 25 mile radius of Boston, Massachusetts
Date Data Gathered: 1958, 1961, 1963, 1965
Selection: All were participants of an earlier study, *You Today and Tomorrow*, by Martin Katz.

Objectives:

1. To test the theory of occupational choice which proposes a process running through a sequence of developmental stages.
2. To determine whether there are significant differences in career sequences.
3. To describe in detail 111 real careers over eight years of development and to seek unifying mathematical and psychological models for them.
4. To determine the extent to which career decisions are based upon self-concept variables and other factors, answering such questions as: What is the role of intelligence in choosing, entering, and remaining in an occupation? What is the role of values in making choices? What is the impact of value shifts as they occur with maturation? What effects do familial and societal pressures have in shaping occupational aspirations?
5. To accomplish a successful multidimensional scaling of early vocational maturity from interview protocols (naming the resulting scales, as a set, RVP).
6. To explore the statistical dependence of numerous criteria of career development in the RVP scales with the criteria being collected in three-, five-, and seven-year follow-up interviews.

Methodology: Interviews. Data analyzed using Markov chain analysis, canonical correlation analysis, and multiple correlations.

Results and Conclusions: Seven years after the data were collected, the eighth grade Readiness for Vocational Planning scores related significantly to the following criteria ($p > .001$): educational aspirations, Roe level of occupational aspirations, Roe group of the actual occupation of the subject two years after high school, and Roe level for actual occupation two years after high school. The tenth grade RVP scores were not significantly related. A significant contingency relationship was found between high school and two success ratings and curriculum in which subjects were enrolled at grade twelve. Success was achieved in fitting Markov chains into six data sets involving four variables. Brighter students appeared to make choices which were consistent with their measured intelligence. There was a trend from idealism in the eighth grade to realism in the twelfth. A high percentage of eighth grade students verbalized a desire to go to college, but there was a definite downward trend for the total group over the seven years. Of the original college aspiring students, 68% of the boys and 58% of the girls reached their college goals. Socioeconomic background was related to educational aspirations more with subjects from a higher socioeconomic background than from those from lower socioeconomic backgrounds aspiring to go to college. There was a definite trend among the subjects to aspire to educational levels higher than those achieved by their parents.

Hall, R. H. Occupations and the social structure. Englewood Cliffs, New Jersey: Prentice-Hall, 1969.

The objectives of this book are to survey the occupational system and to describe and analyze various types of occupations as they exist and change in the social system. Some attention is given to the impact of occupations on the individual, but the major focus is on the interrelationships between occupations and the social structure.

The author discusses an individual's motivation to work, job satisfactions, and stresses at work. Five major bases of the motivation to work are presented: wages, energy expenditure, production of goods and services, social interaction, and social status. In regard to job satisfaction, studies are cited which indicate that satisfaction varies with the position in the occupational hierarchy. The factory worker generally experiences more occupationally-based strains and feelings of alienation, although executives and other white-collar workers also experience job-related tensions.

A major focus of the book is the nature of various categories of jobs and their relationship to society.

The categories are:

1. Professionals
2. Managers, Proprietors, and Officials
3. Clerks and Kindred Workers
4. Skilled Workers and Foremen
5. Semi-skilled Workers
6. Unskilled Workers

Herr, E. L. (Ed.). Vocational guidance and human development. Boston: Houghton Mifflin, 1974.

This text begins with three chapters which are devoted to perspectives on vocational guidance with a historical and world view of vocational guidance. Authors Herr, Borow, and Super examine the status of vocational guidance in America as compared with selected nations of Europe and Asia. They also identify some of the social, legislative, and conceptual changes of the past ten years. Part two consists of six chapters which focus on the implications for individual choice in factors such as urbanization, the social structure, economic enterprise, work, the family, and the educational structure. Three of these chapters discuss concepts of career development, two of which are revisions of earlier books. Jordaan presents an interesting discussion of life stages as organizing modes of career development. Part three describes the current state of theory and research pertinent to career development, life staying phenomena, and models of vocational maturity. Part four, the largest portion of this book, is devoted to the professional world of vocational guidance. These chapters are concerned with implications for professional practice found in assessment, career planning, planned utilization and change of environments, media and systems, working with women, the handicapped, and minority populations. Hershenson's chapter provides a clear and useful summary on vocational guidance and the handicapped. Included in this section is a discussion of the emerging requirements for competency, and the professional preparation of vocational guidance practitioners. Finally, part five discusses the growing international requirements for vocational guidance as well as the dimensions of professional practice which are likely to be evident in the coming decade (i.e., the application of systems thinking to vocational guidance objectives, the expansion of ethnology in guidance, and the changing theoretical bases to which preparation and practice must respond).

Holland, J. L. Making vocational choices: A theory of careers.
New Jersey: Prentice Hall, 1973.

This is Holland's third statement of his theory of career development. It is more comprehensive and deals more completely with vocational problems throughout a person's life than the earlier statements.

The four main assumptions are:

1. In our culture, most persons can be categorized as one of six types: realistic, investigative, artistic, social, enterprising, and conventional.
2. There are six kinds of environments: realistic, investigative, artistic, social, enterprising, and conventional.
3. People search for environments that will let them exercise their skills and abilities, express their attitudes and values, and take on agreeable problems and roles.
4. A person's behavior is determined by an interaction between his personality and the characteristics of his environment.

Four secondary assumptions are:

Consistency. Within a person or an environment, some pairs of types are more closely related than others.

Differentiation. Some persons or environments are more clearly defined than others.

Congruence. Different types require different environments.

Calculus. The relationships within and between types or environments can be ordered according to a hexagonal model in which the distances between the types or environments are inversely proportional to the theoretical relationships between them.

Holland discusses the development of the theory and reviews relevant studies conducted between 1959 to 1972. Over a hundred studies were conducted and Holland focuses on those which had an experimental test of hypotheses.

Johnston, J., and Backman, J. G. Youth in transition: Volume V: Young men and military service. Institute for Social Research: University of Michigan, 1972.

Respondents:

Number: 2,213

Sex: male

Age: 10th, 11th, and 12th grade and one year after high school

Residence: nationwide

Date Data Gathered: 1966, 1968, 1969, 1970

Selection: 87 public high schools

Objectives: This report is the fifth volume of the Youth in Transition study. It is concerned with why some young men choose to enlist after high school rather than take a civilian job or continue their education, and it also deals with the implications for an all-volunteer army.

Methodology: The sample consisted of boys selected from 87 public high schools across the country using a multi-stage sampling design. Interviews, tests, and questionnaires were used to collect information. Data were collected in 1966 (tenth grade), 1968 (eleventh grade), 1969 (twelfth grade), and 1970 (one year after graduation). Measures of military plans and attitudes were included in the last two data collections.

Results and Conclusions: The study did not find any particular profile of background, ability, or personality which typified enlistees. However, young men who enter college are under-represented in the military, and college entrance is associated with high socioeconomic level, academic ability, and past scholastic success. It was found that enlistment decisions are made in the context of parental pressures, opinions of friends, and the broader climate of public opinion. In the period during which these data were collected, the Vietnam war was the dominant feature in the social context.

Katz, M. Decisions and values: A rationale for secondary school guidance. New York: College Entrance Examination Board, 1963.

The author briefly discusses occupational choice theory and its corollaries in guidance. He presents a rationale for the nature of guidance intervention, focusing on two important choice points, one at the beginning and one near the end of secondary school. At the conclusion of his paper, he states that guidance helps a student to find order in the complexities of decision making, helps him to enrich his experience by examining it, and helps the student to become a conscious artist of his own career.

Kroll, A. M., Dinklage, L. B., Lee, J., Morley, E. D., and Wilson, E. H.
Career development: Growth and crisis. New York: Wiley, 1970.

This book reviews the career development process, both summarizing the ideas of others and expanding on these ideas. Sections are included on self-evaluation and career development, nature and development of commitment in late adolescence, adolescent choice and decision making, teaching and learning of decision making, teaching and learning of decision making in career development, the career crisis of losing one's job, and implications for guidance. The author recommends the fostering of self-evaluation and the development of decision-making skills through guidance programs. Also that there should be more investigation of coping behavior styles before and after career crises.

Laccaria, J. Theories of occupational choice and vocational development.
Boston: Houghton Mifflin, 1970.

In this monograph, the author presents an overview of the major theories of vocational choice and career development. In the initial chapter, he outlines the contributions and speculations of the various disciplines toward work. In the second chapter, he summarizes the following theories of occupational choice: trait factor, need-drive, psychoanalytic, Roe's and Hoppock's. He feels that the common element among these theories is that each person chooses an occupation at some given point in his or her life. In chapter three, Ginzberg's, Holland's, Tiedeman's, and Super's theories of vocational development are discussed. These theories emphasize the longitudinal qualities of man's growth and development. The final chapter is devoted to an evaluation of the various theories. Included in this discussion are some of the implications for practitioners who are working with students at various levels.

The author describes all the preceding theories as embryonic or emerging formulations at best and all fundamentally envision the individual achieving success and happiness through work. The main difference, as identified by the author, is the motivation of the prospective worker and the conceptualization of vocationally relevant behavior presented in the different theories. The final discussion focuses on purist and eclectic approaches to theory selection. The author defines both approaches and presents an "integrated approach to counseling for practitioners at three different school levels."

Lofquist, L. H. and Davis, R. V. Adjustment to work: A psychological view of man's problems in a work-oriented society. New York: Appleton-Century-Crofts, 1969.

The authors begin the book with a discussion of the meaning of work, the problems posed by work, the work personality, and the work environment. They explore how individuals choose their work. There are constraints as a result of the society, social class, family, and peer group. Selecting a job is a complex procedure based on a person's information about himself and employment opportunities. The authors discuss their concept of the formation of abilities and needs and their expression in interests and personality characteristics.

A theory of work adjustment is presented which is based on the correspondence between the individual and the work environment. Correspondence is described in terms of the individual fulfilling the requirements of the work environment and the work environment fulfilling the requirements of the individual. A number of studies are reviewed which relate to this theory.

The authors then relate this theory to problems such as unemployment, automation, and retirement. For example, they recommend an individualized approach in dealing with unemployment to match people with an appropriate job environment. They feel that more well-trained vocational counselors are required to provide people with assistance in job selection. Appropriate use of interest and personality tests are viewed as an important part of the counseling procedure.

Osipow, S. H. Theories of career development. New York: Appleton-Century-Crofts, 1968.

This text provides a direct comparison between the major theoretical modes of thought in vocational psychology. The theories of Roe, Holland, Ginzberg, and Super are presented in the following manner: First, a statement is made of the general nature and scope of the theory and its basic thesis. Next, the results of research stimulated by the theory or relevant to it are discussed and evaluated. Third, the implication of the theory for the specific conduct of career counseling is considered. Finally, the theory is evaluated and the expectations for future development are discussed. After comparing the theories, the author concludes that most of the theories are similar; they emphasize the same kinds of critical agents and periods in career development. The differences lie in their choice of emphasis, the research methods suitable to each, and the degree to which they specify the relations between various events. As a conceptual model, Osipow feels that Super's theory seems to be the most highly developed and advanced because of its explicitness and the high degree of empirical support. In his conclusion, Osipow states that there are several shortcomings to career development theories, the major shortcoming being that they are too broad and generally too skimpy in detail. He recommends the collection of miniature theories, each dealing with circumscribed, explicit segments of vocational behavior, to be woven into a broad theory of vocational behavior.

Pavalko, R. M. Occupational choice. In Sociology of occupations and professions. Itasca, Illinois: F. E. Reacock, 1971. Pp. 44-79.

Objective: To present an overview of vocational and occupational choice theories developed by Blau, Ginzberg, Holland, and Super. Also in this chapter, the factors which influence and restrict an individual's vocation choice are reviewed. The chapter is concluded by discussing the relationship between higher education and occupational choice and the social origins of members of specific occupations.

Results and Conclusions: The main social characteristics that have been reported in the literature previously have been social class background, rural-urban residence, race, and sex. The following conclusions have resulted: (1) The higher the social class, the more likely one will aspire to prestigious and rewarding occupational positions; (2) Youth residing in urban communities appear to possess higher vocational aspirations than those in rural communities; (3) Although the racial factor is complex, results tentatively indicate that the occupational aspirations of white males are higher than those of black males; (4) Women tend to have lower occupational aspirations than men. Also, studies were cited that seemed to support the conclusion that the more education a person has obtained, the more prestigious and lucrative his occupation. Lastly, the author reviews some previous studies regarding the influence of "social origins" on specific vocational selection, i.e., United States military officer, protestant clergyman, and teacher. The author hypothesizes that perhaps there exists a tendency for youth to inherit their fathers' occupations (especially the professions) because of the covert knowledge gained regarding these vocations. Although clearly speculative, the author suggests that there may exist a sub-culture which perpetuates certain occupations within specific social classes.

Rosenberg, M. Society and the adolescent self-image. Princeton:
Princeton University Press, 1965.

Respondents:

Number: 5,024
Sex: male and female
Age: 11th and 12th grade
Residence: New York
Date Data Gathered: (not stated)
Selection: 10 randomly selected public high schools in New York
State

Objectives: This survey attempts to understand how these adolescents saw themselves, how they felt about themselves, and what criteria for self-evaluation they employed. It explores the nature and influence of social experience including the family, the neighborhood, social class, religious group, and national background.

Methodology: A ten-item Guttman scale was used to measure self-esteem. Results are reported in percentages.

Results and Conclusions: The book discusses the results and their possible causes and implications. The author concludes that social groupings impose on a child a characteristic style of life, set of values, and system of beliefs and ideals, which provide a basis for self-judgment. The largest differences in self-esteem appeared when specific subcultures were considered, not on the basis of prestige rank in the broader community. The effect of family influences such as broken family, birth order, and parental interest varied depending on the situation. In terms of occupational orientation adolescents with low self-esteem seem to prefer situations where they avoid power and conflict, while students with high self-esteem view competition as a challenge and an opportunity. Also, students with low self-esteem anticipate that they will not achieve desired levels of achievement and thus experience occupational frustration.

Schafer, C. J. and Kaufman, J. J. (Eds.). Vocational education: Social and behavioral perspectives. Lexington, Massachusetts: Heath Lexington Books, 1971.

This book is a compilation of nine papers and their responses, which were presented at a symposium on vocational-technical education in Boston. It is a culmination of the efforts of the first project of the Massachusetts Advisory Council on Education.

Chapter 1. The development of vocational education in America: An historical overview by Dr. Vincent Lannee.
In this paper, Lannee presents the differences in the views of various vocational educators of the role of the Vocational Education Act of 1963.

Chapter 2. A behavioral view of vocational-technical education by John W. Altman.
Altman suggests that education should be concerned with behavioral objectives, that is, what the learner should be able to do at the end of an educational experience.

Chapter 3. Sociological perspectives in vocational-technical education by Marvin B. Sussman.
Sussman examines vocational education from a sociological perspective in order to underline what efforts need to be undertaken to make the world of work more viable and to match the pace of social change.

Chapter 4. Decisions for vocational educators: An economists' view by Mary J. Bowman.
Mary Bowman explores at length the various issues involved in cost-benefit analysis, using the high school dropout as an illustration.

Chapter 5. Manpower analysis and vocational education: Problems and perspectives by Ivan Berg.
In this paper, Berg points out that educational requirements for jobs have tended to be part of "developing credentialism" rather than specific educational experience. He also discusses the relationship between technological changes and educational requirements.

Chapter 6. Vocation, education, and guidance by Raymond C. Hummel.
Hummel's main point is that guidance should be permissive and nonprescriptive.

Chapter 7. Vocational education: Is it more than education for a vocation? by Benjamin Shimbery.
Shimbery poses three basic questions to which answers must be sought if one is to design a sound program of vocational education properly.

Chapter 8. The social context, poverty, and vocational education by Richard Gibboney.
Gibboney emphasizes the serious gap which exists between vocational theory and practice and its resulting effect on society.

Chapter 9. But readjust we must--teacher education by Ernest Minelli and Thomas M. Benton.
This is an objective presentation of the factors affecting both vocational education and vocational teacher education.

Schultz, T. W. The economic value of education. New York: Columbia University Press, 1963.

The author reviews what economists have done to apply economic analysis in the area of education. He explains that schooling can be viewed as consumption or an investment. It is an investment because schooling increases future earnings for the individual, which in turn allows for future consumption. It also increases producer capability for the society and is a source of economic growth.

The student bears the major cost of getting an education for they forego income as well as pay tuition and other expenses. Studies show that the opportunity cost or foregone income for high school and college students accounts for about three-fifths of the cost of their education. This is particularly significant for low income families which depend on the youth's earnings. Students incur a number of risks, such as if they will be able to perform successfully in school, if they will be able to obtain a job after school, and if it will continue to be an asset later in life. Students also face difficulties financing their education. A number of studies are reviewed on the rate of return for the individual which give rates of return for high school and college ranging from 10 to 15 percent.

Solomon, L. and Taubman, P. (Eds.). Does College matter? Some evidence on the impact of higher education. New York: Academic Press, 1973.

This book is a series of papers that resulted from an interdisciplinary conference on the benefits of higher education. The conference was held at Wood Hole, Massachusetts during the summer of 1972. The following is a summary of the highlights of various papers presented by the authors.

Lewis C. Solomon begins by reviewing and assessing the literature on the effects of schooling on subsequent success, primarily by examining the influence of the amount and quality of education on earnings when socioeconomic origins and ability are taken into account.

Anne Ellison and Bennett Simon provide a social psychiatric overview of research in higher education, stressing the social psychological costs and benefits of education.

Dael Wolfle and Alexander Astin present evidence on the relationship between family background, ability, quality of education, and earnings.

Robert Hauser discusses the relationship between these same variables, taking into account several methods of measuring interaction effects.

Carl Kaysen discusses the intellectual issues and policy matters that gave rise to interests in costs and benefits of education. He suggests that capitalists may have already mined most of the pay dirt in this area.

Barry Chiswick considers questions involved in the relationship of schooling, screening, and income, and presents evidence that tends to refute the "sheepskin hypothesis" by showing that the larger payoff from schooling received by graduates compared to dropouts is due to productivity differences.

Ellis Page discusses a rationale for a new measure of general educational advancement called the "bentee" or "benefit t score."

Michele Patterson relates findings on the monetary returns to higher education for women.

Edmund W. Gordon traces the development of higher education for minorities and makes suggestions for new directions for future effort.

Mack Jones traces the development of black colleges in America and indicates ways in which they now fail to meet their responsibilities to the black community.

Charles V. Willie identifies some of the problems of college education for blacks and the meaning of their education for majority and minority populations in the U. S.

Thomas J. Cottle presents three intensive life studies of the varying effects of college in the lives of individuals.

Robert W. Hertman's paper is devoted to summarizing and examining the arguments for and against greater public subsidy for higher education. He concludes that there are good "a priori" reasons for and no empirical evidence to invalidate policies that would: (1) target existing subsidies at both federal and state levels on low income students; (2) increase research and innovation in higher education; and (3) encourage moves toward relative prices for higher education that reflect relative costs.

David Mundel explains the role of government in higher education in a free society. He argues that the appropriate and effective basis for social support and intervention in a free market are: (1) public schools and social benefits; (2) externalities; and (3) market imperfections.

Richard Freeman discusses the effects of public subsidization of higher education. He feels social benefits may be less than commonly thought and regressive income distribution may result.

W. Lee Hansen discusses the problem of how to better estimate the scope and magnitude of external benefits and, using the estimates, to determine the appropriate financial arrangement among different levels of government.

Gerald Platt discusses how best to finance higher education so that more of the poor may obtain the kinds of post-secondary education that will increase cognitive competence, not just vocational skills.

Andre Daniere reviews issues that have occupied students of the economics of higher education during the last decade.

Fritz Machielp discusses many issues, one of which is the problem involved in using parents' socioeconomic status in the explanation of students' attainments.

Mary Bowman raises questions about the noncognitive effects of education and the subsequent significance of such learning. Also included in her discussions are: the importance of career analysis, the importance of increasing educational levels of minority groups, on-the-job training, social mobility, and the discrepancies between social and private benefits.

C. Arnold Anderson comments on the results of interdisciplinary research outcomes of higher education.

In the final chapter, Lewis Solomon points out some of the issues in the study of costs and benefits of higher education. He elaborates on some of the conceptual problems and indicates how research methods and conclusions need to be modified.

Striner, H. E. Continuing education as a national capital investment.
The W. E. Upjohn Institute for Employment Research, 1972.

The author contends that in a society such as ours with rapid technological change, workers must be adaptable and willing to retrain. He views continuing education as a national capital investment and believes that the U.S. must place more emphasis on retraining to maintain its rate of economic progress and to lessen the problems of unemployment and stagnation. The book describes how Denmark, France, and West Germany have used continuing adult education as a means of reeducation to meet changing needs in their economies.

West Germany has begun to implement a program which fully subsidizes the continuous training and retraining of members of the labor force. In Denmark the folk high schools train and educate large numbers of Danes for vocational and managerial skills. In France there is a new law which enables up to 2% of the French labor force to move back into a subsidized educational and training system. Other countries such as Sweden and England are also taking major steps in continuing education.

The author recommends an expanded adult education program in this country which would include economic subsidization to workers and their families so that they do not have to sacrifice financially. He feels that this subsidy would be cost effective to the society and that not to provide it would incur a greater loss in national income, productivity, and tax income. The programs should be flexible and provide guidance for students.

Super, D. E., and Overstreet, P. The vocational maturity of ninth-grade boys. New York: Teachers College, Columbia University, 1960.

This monograph is the second in a series of publications by the staff of the Career Pattern Study, a longitudinal research project concerned with vocational development. The theoretical framework is summarized; the subjects, their school, and their community are described. The conceptual framework of this study is developmental. Generalizations concerning the development of vocational behavior are stated in Chapter One.

The study was limited to boys in order to control data with respect to sex differences. Most of the core data were obtained from 105 ninth grade boys who were similar in certain respects to the class from which they were drawn. Each respondent took an extensive battery of tests and interviews (including Strong's Vocational Interest Blank, Personal Data Blank, the Otis Quick Scoring Test of Mental Ability, the Work Values Inventory, and the Life Planning Questionnaire) and participated in a series of four tape-recorded interviews. From this process, considerable material was obtained. Five indices of vocational maturity were derived from the material. Also, 28 variables were selected for study as possible correlates of vocational maturity.

Vocational maturity in the ninth grade was defined as behavior in preparation for vocational choice, as planning and looking ahead. The low inter-correlational maturity is not characterizable as goal attainment, as having consistent, realistic preferences, nor as having begun to make a place for oneself in the world of work.

The authors conclude that education in the ninth grade should be so organized as to make available experiences which foster an approach to developmental tasks; to arouse an awareness of the need to make pre-occupational and occupational choices; and to orient adolescents to the kinds and sequences of choices they will be called upon to make and to the factors which they consider in making these choices. It should not require the making of definitive, directional, educational, and occupational choices in this grade. Guidance in the ninth grade should appraise the student's planfulness, readiness to make vocational choices, concern with the need to choose, and awareness of the factors to be considered in choices. It should help students learn to find and use experiences which foster this readiness, and to make required preliminary choices in ways which keep as many doors open as possible for as long a time as possible. It should proceed on a tentative, step-by-step, developmental basis.

Terkel, S. Working: People talk about what they do all day and how they feel about what they do. New York: Pantheon Books, 1974.

This book is about what the title says it is about: people talk about what they do all day and how they feel about what they do. It is based on interviews with people selected randomly from all walks of life. It consists of descriptions of 132 workers. Each description begins with a paragraph or two on the person's background and then presents a few pages of what the person actually said in the interview. The descriptions are impressionistic and do not follow a set format. Generally they are about the realities of the day-to-day activities of the people. The focus is on what the job is like now, but most also include a description of how and why the person got started in the job and their career path. The book is a wealth of information on our society and how people feel about themselves and their jobs.

The author included an introduction which sets the tone for the book. It begins with this paragraph:

This book, being about work, is, by its very nature, about violence -- to the spirit as well as the body. It is about ulcers as well as accidents, about shouting matches as well as fistfights, about nervous breakdowns as well as kicking the dog around. It is, above all (or beneath all), about daily humiliations. To survive the day is triumph enough for the walking wounded among the great many of us.

Tiedeman, D. V. and O'Hara, R. P. Career development: Choice and adjustment. Princeton, N.J.: College Entrance Examination Board, 1963.

In the Foreword, the authors describe their monograph as a "concatenation of concepts" and disclaim any intention of formulating a theory of career decision making. Yet, they go on to define the central concepts of their theory of career decision making. They begin their monograph with sections on philosophical considerations and four case studies which they analyze with reference to vocational choice processes, personality, interests, self-evaluations, and "interpretation of awareness" gained from experiencing life's discontinuities. In the sections on "Differentiation and Integration, the Mechanisms of Career Development" and "Observation and Career" an outline of the steps involved in problem solving is provided and the characteristics of the stages in the work history from early adolescence to late adulthood are delineated. These areas are suggested ones for further research.

Tillery, D. Distribution and differentiation of youth: A study of transition from school to college. Cambridge, Mass.: Ballinger, 1973.

Respondents:

Number: 33,956

Sex: male and female

Age: high school seniors

Residence: California, Illinois, Massachusetts, and North Carolina

Date Gathered: 1966, 1967

Selection: Cross section of youth in the public and private schools in these states through selection of specified types of school districts.

Objectives: To determine the decision-making patterns among high school students -- the ways in which they acquire information about colleges and vocations; the nature and relative importance of parental, school, and general community influences on their decisions; and when various stages in the decision-making process occur.

Methodology: A set of tests and questionnaires was administered to seniors to collect information on the following: academic ability (AAT); family and home milieu (SES); parental expectations; self-evaluation; values; perceptions of school; information-seeking activities; occupational preferences; and intellectual predisposition.

Results and Conclusions: Results focused on who attended college and who did not and how student characteristics related to the type of college attended, such as junior college, four-year college, or university.

Slightly more than half of the students were in college a year after graduation. The percentage by state was 71% in Massachusetts, 70% in California, 58% in Illinois, and 48% in North Carolina. California had the highest percentage in public schools (82%) and the highest percentage in junior college (35%). More males (53%) than females (48%) attended college.

Students from high SES were more likely to attend college, particularly four-year colleges and universities, than students from homes with average or below SES.

Whites made up only 73% of the population in the four states, while 90% of the college freshmen in the sample were whites. The highest percentage (25%) of nonwhites attended colleges which offered less than two years of school.

There was a close correspondence between parent and student expectations. Eighty percent of the students reported that their parents expected them to attend college and 78% shared this aspiration. This percentage was considerably lower than the 50% who attended. Fifty percent of the students reported that their parents wanted them to graduate or attend a graduate school. This corresponded to 50% of the students with this aspiration.

In regard to performance on a standardized academic test, only 15% who were in the highest quartile did not go to college, while 77% in the lowest quartile did not. In regard to estimate of past achievement, 80% of the students who rated themselves as having excellent grades in high school enrolled in college.

Financial expectations of costs and aid were a major factor in college attendance. Only one quarter of the students reported that cost had no influence. Among students from the lowest income families, 43% expected their parents to contribute nothing at all. The follow-up showed that 88% of the families contributed either less than \$600 or nothing at all. But very few students reported more than \$600 in earnings during their freshman year. The result is that the students who are obliged to work are often those least able to carry this burden.

Students were also asked to evaluate the helpfulness of several key guidance areas and from one-fifth to one-third of the students reported no counseling in the areas sampled. Only about half reported that the high school guidance services were helpful.

Trent, J. W., and Medsker, L. L. Beyond high school. San Francisco: Josey - Bass, 1968.

Respondents:

Number: 4,673

Sex: male and female

Grade: high school graduates

Residence: 16 communities throughout the midwest, California, and Pennsylvania

Date Data Gathered: between 1959 and 1963

Selection: For purposes of comparison, the graduating classes of 37 high schools were chosen from communities which offered different kinds of institutions of higher education: five had a junior college, four had a freshman-sophomore extension center, four had a state college, two had no colleges of any kind, and one had a diversity of types. In other respects, the communities in which the students resided were matched as closely as possible on several criteria with the intentional exception of the metropolitan area. In addition, the sample was composed of the entire public high school senior class in all communities chosen, with the exception of the very large ones and the metropolitan communities.

Objective: To discover and analyze those factors that influence high school graduates' choices regarding various pursuits and to gauge the effect they have on subsequent development. A four-year longitudinal study was conducted by the Center for Research and Development in Higher Education at the University of California, Berkeley. By following the careers of 9,778 high school graduates (some who attended college and some who pursued noncollege careers) the focus of central concern was the different impacts of college and employment on values and attitudes.

Methodology: Personality characteristics, values, goals, academic aptitude; and social, economic, educational and cultural backgrounds of the Ss were evaluated in their senior year in high school, and at intervals during the next four years. The instruments used were psychometric measures, e.g., Thorndike's 20-item CAVD verbal intelligence test. In addition, the Omnibus Personality Inventory which measures anxiety, intellectual, and social attitudes was employed; as well as student questionnaires devised by the staff. Students were also interviewed.

Results and Conclusions: Some of the major findings concluded by the authors were:

1. A very large proportion of able youth either did not attend college or withdrew before graduation.
2. Although college attendance and performance appeared to be related to native ability [$p < .01$], socioeconomic background [$p < .01$], and community educational opportunities, other factors singly and interdependently associated with college attendance were: students' perceptions of their parents as

emotionally supportive, alert, and interested in their progress [$p < .01$]; a view of education as worthwhile in itself rather than as utilitarian vocational training; academic motivation; personal autonomy and nonauthoritarianism; intellectual disposition; and the decision to attend college before high school.

3. Academic interest and motivation, instilled early in life, were related to college entrance and persistence, together with an independence of ability and socioeconomic status. And academic motivation and educational attainment were related to the development of flexibility and intellectuality.
4. The degree of intellectual and personal development varied with the degree of motivation to enter and persist in college. Young people not in college showed little and sometimes no discernible personality development, as measured by the instruments used. The least flexible, tolerant, and intellectually disposed individuals were found among high school graduates who never attended college, followed by college withdrawals.
5. Although many young people who did not attend college expressed themselves as satisfied with their lives and livelihoods, many more did not. Four years after high school, a large proportion remained dissatisfied with their vocations, and many showed a continuing lack of realism about their vocational plans. Although unemployment was not high at any one time, it affected many of the noncollege young adults at some time during the four years of the study. A great many of the noncollege men expressed regret that they had not entered college.

Zald, M. N. Occupations and organizations in American society. Chicago:
Markham Publishing Co., 1971.

The author examines the development of the professions, trends in large-scale organizations, the interactions of the two, and the effects of a dynamic environment on organizations and occupations in America. In his summary he concludes, "Students of sociology and social change may wish to say that modern man is too dominated by organizations and that we ought to do something about this."

C-44

JOURNAL ARTICLES, MONOGRAPHS, AND REPORTS

Almquist, E. M. Sex stereotypes in occupational choice: The case for college women. Journal of Vocational Behavior, 1974, 5(1), 13-21.

Respondents:

Number: 110

Sex: female

Age: college senior year

Residence: (not stated)

Date Data Gathered: (not stated)

Selection: one class in a women's college of a professionally and technologically oriented university

Objectives: To determine if women's choices of men's occupations stem from negative reactions to being socially isolated and in conflict with one's family or if these are more positive choices related to the work values they have internalized and experiences in an academic milieu which promotes the choice of such occupations.

Methodology: Questionnaires and interviews on background, experiences, and plans.

Results and Conclusions: The occupational choices were divided into two categories, masculine (40%) and feminine (60%). Women who selected male-dominated areas were more likely to cite role models ($p < .001$), feel that faculty considered her outstanding or bright ($p < .001$), have a mother who was employed regularly ($p < .01$), have a mother with at least some college ($p < .05$), have held two or more different jobs ($p < .01$), and be a sorority member ($p < .05$). Factors which did not show a significant difference between the two groups were relationship to parents, social life, or extracurricular activities. Thus it rejects the notion that the selection of a non-traditional work area stems from social isolation, rejection, or lack of appropriate feminine socialization.

Anderson, T. and Olsen, L. Congruence of self and ideal-self and occupational choices. Personnel and Guidance Journal, 1965, 44, 171-176.

Respondents:

Number: 96

Sex: male and female

Age: 17

Residence: Washington

Date Data Gathered: 1961-1962

Selection: random selection from senior class

Objectives: Test of hypothesis inspired by Super's self-concept theory that people whose realistic self-appraisal agrees with their ideal self-image will have more realistic occupational goals than will people who see themselves as falling short of their ideal.

Methodology: Similarity of real self to ideal self was judged by comparing each student's performance on two paper-and-pencil Q-sorts (Eugel, 1959) containing positive and negative self-judgments. The Q-sorts were administered three weeks apart. Realism of occupational choice was assessed by comparing student scores on the Flanagan Aptitude Classification Tests (Flanagan, 1958, 1959) with median percentile scores published for each occupational field. A student's occupational choice was judged realistic if the occupation selected was neither above nor below his measured aptitude.

Results and Conclusions: Results failed to confirm the self-concept hypothesis. Students whose occupational choices were judged realistic on the basis of their FACT scores were not significantly different from "unrealistic" students in regard to consistency between "real" and "ideal" self as measured by the Q-sorts. Nor was there any significant difference in real-ideal self-congruence between students who planned to attend four-year colleges and those who aspired to the junior college level. Among students who made unrealistic choices, more aspired to occupations above their level than to ones below it, a fact which the authors ascribed to cultural pressures.

Ashby, J. D., Wall, H. W., and Osipow, S. H. Vocational certainty and indecision in college freshmen. Personnel and Guidance Journal, 1966, 44, 1037-1041.

Respondents

Number: 228 (108 in decided group, 29 in undecided group, 91 in tentative group)

Sex: male and female

Grade: entering college freshmen students

Location: Pennsylvania State University

Date Data Gathered: estimated to be in 1965

Selection: students entering their first term as freshmen at Pennsylvania State University. Three groups existed: (1) the decided students who expressed considerable certainty about their educational-vocational plans, (2) the undecided students who were too uncertain of their plans to officially commit themselves to a specific program, and (3) the tentative students who possessed some educational-vocational goals with a moderate degree of certainty.

Objective: To develop an understanding of the personality and demographic factors that differentiate vocationally-decided from vocationally-undecided students. The study focused on the background, personality, and college performance of undecided students in comparison with freshmen who began college with a vocational objective clearly in mind.

Methodology: The following were employed to differentiate the three groups of students chosen for comparison: the Strong Vocational Interest Blank (SVIB); the Bernreuter Personality Inventory (BPI); selected items from a Personal Information Blank (PIB); the Pennsylvania State University (PSU) Academic Abilities Test; the size of the student's high school class; the student's grade-point average (GPA) through the 11th grade; his Scholastic Aptitude Test (SAT) verbal and quantitative scores; his parents' income reported in five categories; his father's and mother's education; and his first-term GPA at PSU.

In addition to the above information, prior to their enrollment at PSU all students were required to rate themselves according to Holland's six personality types.

Results and Conclusions: The results indicated that: (1) the Decided group is different from both the Tentative and Undecided groups on the intelligence rating ($p < .01$), and different from the Tentative group on the artistic rating ($p < .05$); (2) the Undecided group has significantly higher scores on the dependence measure than the Decided and Tentative groups ($p < .01$); and (3) the Decided and Undecided groups appear to demonstrate academic superiority over the Tentative group.

Astin, A. W. Effect of different college environments on the vocational choices of high aptitude students. Journal of Counseling Psychology, 1965, 12(1), 28-34.

Respondents:

Number: 3,538

Sex: male

Grade: college student

Location: 73 various colleges and universities

Date Data Gathered: estimated to be between 1957 and 1961 (four-year longitudinal study)

Selection: students judged to be exceptionally able, and either Merit Finalists or recipients of the Letter of Commendation from the 1957 Merit Scholarship Program. At the time they entered college in 1957, these students completed and mailed questionnaires concerning future vocational and educational plans, socioeconomic background, and other information.

Objective: To identify some of the effects of different college environments on the career choices of exceptionally able college males attending various institutions. The assumption stated was that people tend to become more like their environments and, during college, students' vocational choices tend to conform more and more to the dominant choice in their college environment.

Methodology: During the four-year period of investigation, three types of data were gathered: (1) student output (criterion) data (these data consisted of the students' career choice at the time of graduation from college which was gathered by means of questionnaire); (2) student input (control) data (those characteristics of the entering student which might be expected to affect his later performance--this information was also gathered by means of a questionnaire which focused on future vocational and educational plans, socioeconomic background, previous academic performance, etc.); and (3) environmental data (those characteristics of the college which might be expected to affect the student's performance) as measured by the Environmental Assessment Technique (EAT) including eight measures of size and ability of the student body and Holland's six classifications of occupations, as well as three institutional factors, i.e., Affluence, Masculinity, and Homogeneity.

Results and Conclusions: The results revealed that the most significant factor determining final career choice at graduation was the student's initial career choice ($p < .001$). However, support was offered to indicate that college environment affected final career choice. For Realistic type of career choices, one of the college variables (Realistic Orientation, $p < .01$) positively affected career choice, and four other college variables (Social-- $p < .01$, Enterprising-- $p < .05$, Artistic Orientation-- $p < .01$, and Coeducational Liberal Arts-- $p < .05$) negatively influenced career choice. Similarly, Enterprising career choice was positively affected by the Enterprising Orientation ($p < .01$) of the college, and negatively affected by Coeducational Liberal Arts colleges ($p < .05$). However, the negative effects on Enterprising and Realistic career choices were

no longer significant when entered into multiple regression equations. The only variable which significantly affected the Intellectual type of career choice was Coeducational Liberal Arts colleges ($p < .05$). None of the college variables had significant effects on Social career choices. Nevertheless, the author concludes that a student's chance of eventually pursuing a particular type of career appears to be increased somewhat if he attends a college in which a relatively high proportion of the other students are planning similar careers.

Astin, A. W. and Nichols, R. C. Life goals and vocational choice.
Journal of Applied Psychology, 1964, 48, 50-52.

Respondents:

Number: 500

Sex: male and female

Age: college seniors

Residence: nationwide

Date Data Gathered: 1961

Selection: drawn from a sample of National Merit finalists and semifinalists

Objective: To define some of the major life goals of a sample of high aptitude college seniors, and to determine the relationships between the students' goals and their career choices.

Methodology: A questionnaire was mailed to National Merit finalists and semifinalists on vocational, personal, and social goals in life. The sample was selected from those returning the questionnaire and product-moment correlations among life-goal and self-rating items were computed separately for males and females.

Results and Conclusions: Eight factors were identified: self-esteem, personal comfort, artistic motivation, scholarship, science-technology, prestige, and altruism. Life goals and self-ratings in each of these categories with a loading of .30 or larger were reported. Five variables (personal comfort, science-technology, prestige, altruism, and expected income) discriminated among 36 career groups of the 10 2xk chi square tests; all were significant at the .001 level except for the test of the prestige factor among women ($\chi^2 = 30.02$, $df = 16$, $p < .02$). Men were more concerned with achievement in science and technology and with gaining prestige. Men also expect to make more money than do women. Women were more concerned with altruism and with personal comfort. There were also differences between professions. For example, men intending to be business executives scored highest on personal comfort while those interested in law had the highest score on prestige.

Astin, H. S. Career development of girls during the high school years. Journal of Counseling Psychology, 1968, 15, 536-540.

Respondents:

Number: 817

Sex: female

Age: ninth and twelfth grade of high school

Residence: nationwide

Date Data Gathered: 1960, 1963

Selection: subsample of Project TALENT data

Objectives: To identify the personal characteristics of the ninth-grade high school girls that predict their vocational choices three years later at the twelfth-grade level; to identify characteristics of the secondary school that affect career choices as expressed at the time of graduation; and to identify some of the personal qualities associated with choices of particular kinds of occupations.

Methodology: Students were tested in the ninth grade and retested in their senior year. Personal variables included aptitude, achievement, temperament, interests, family background, and school environment. Occupational choices were divided into seven groups. Multiple discriminant analysis was used on the data.

Results and Conclusions: The analysis using the 26 antecedent variables resulted in five discriminant functions which accounted, respectively, for 47.09%, 19.50%, 14.25%, 10.58%, and 5.47% of the discriminating information in the 26 predictor variables. The significance of the separation of the groups yielded a Wilk's lambda of .51.

Results conclude that girls who plan college careers in science or teaching differ from girls planning to be housewives or do office work on the basis of socioeconomic status, math ability, choice of college preparatory curriculum, and interest in physical sciences. Also the seniors choosing different careers could be differentiated in terms of interests, career plans, and aptitudes as measured during the ninth grade. For example, mathematical aptitude and mechanical information often discriminated. In regard to school environment, girls who attended larger high schools were more likely to plan careers in the professions and sciences, whereas the girls who attended smaller high schools were more likely to aspire to teaching or office work.

Astin, H. S., and Myint, T. Career development of young women during the post-high school years. Journal of Counseling Psychology, 1971, 18 (4), 369-393.

Respondents:

Number: 5,387

Sex: female

Age: seniors in high school, 1 year later, 5 years later

Residence: nationwide

Date Data Gathered: 1960, 1961, 1966

Selection: subsample of Project TALENT data

Objectives: To determine what personal characteristics and post-high school experience affect young women's career choices and the stability of career choice. Also gives a brief review of relevant theoretical positions and empirical data.

Methodology: The 1960 sample was tested for two days with a battery of tests and questionnaires to gather information on aptitude, achievement, activities, interests, aspirations, and background. The 1965 follow-up was a mailed questionnaire on experiences since high school. Multiple-discriminate analysis and univariate statistics were used.

Results and Conclusions: Post-high school experiences were the best determinants of career outcomes. Educational attainment and marital-familial status best predicted whether women would choose to pursue careers in the sciences, professions, and teaching, or to be housewives and office workers. Of the personal characteristics, scholastic aptitudes (particularly those related to math and science), socioeconomic status, and early career choice were the best predictors. Brighter women either maintained or raised their vocational aspirations over time, while the less academically capable women planned on less demanding careers.

The author concludes that appropriate guidance is crucial for girls who have low aspirations in high school.

Austin, D. L. Career path analysis can aid education and industry.
The Vocational Guidance Quarterly, September, 1974, 41-48.

This article describes four industrial jobs in detail, beginning with points of entry, intermediate positions, and terminating with descriptions of the highest level of responsibility in each of the four areas. Included in this discussion are the various tasks associated with each level of responsibility and the annual salary earned. From this descriptive information, the following areas are recommended to be pursued in greater depth in order to better prepare students for jobs. They are:

1. Information-processing skills. Almost all firms, and certainly all manufacturing firms, have been able to obtain very detailed information about every aspect of their operation. Career counselors could visit a representative sampling of companies, learn how their various management information collecting systems operate, and then build an appropriate study program.
2. Commonality of requirements: There are literally thousands of electronic, electromechanical, and mechanical assembly jobs across the country. Most of these entry-level jobs have many elements in common. Analysis of these positions by guidance counselors in coordination with personnel managers should create an information package about standard job requirements.
3. Material inspection needs: Thousands of people make their living inspecting and testing products, components, and parts. A coordinated effort of school counselors and personnel workers should result in a basic testing and measuring program of education.

Baird, L. L. Cooling out and warming up in the junior college.
Measurement and Evaluation in Guidance, 1971, 4 (3), 160-171.

Respondents:

Number: 2,513 (1,511 males and 1,002 females)
Sex: male and female
Grade: junior college students
Location: attending 27 various junior colleges
Date Data Gathered: between 1965 and 1967
Selection: students taking the American College Test (ACT) in 1965, and completing a follow-up questionnaire in 1967, the second semester of their second year of college. No additional information was provided regarding how students were selected.

Objectives: To examine the characteristics of students who lowered their aspirations during junior college (cooled out). These students were compared with two other groups of students: those who increased their aspirations while attending junior college (warmed up); and those who retained their original aspirations (stayed).

Methodology: These students were compared by means of the ACT taken prior to college entry. This measure included high school grades, a checklist for extracurricular achievement, family income, and other factors that may have influenced their choice of college. The follow-up measures consisted of completing a questionnaire in which the students rated their junior college teachers and indicated their sense of progress and satisfaction while in junior college. In addition, a checklist of extracurricular college achievements was completed. Each student also reported his overall college GPA and stated the amount of time employed while attending college, number of miles and amount of time traveled to attend college, and the proportion of leisure time spent at school. In addition, students were asked to indicate the specific steps they took for employment or transfer.

Results and Conclusions: The results indicated that only a few junior college students lowered their career plans (men 11.4% and women 14.3%), while nearly half raised their degree plans (men 45.3% and women 49.9%). Only 3% of both the males and females planned a junior college degree after initially planning some higher college degree.

Students who cooled out reported high satisfaction with the preparation for employment they received in junior college (both men and women, $p < .01$), and "warmers" had taken more steps toward transferring to a four-year institution (both men and women, $p < .01$). Among men, "warmers" had low family incomes ($p < .05$). Women "coolers" had superior high school art ($p < .05$) and writing achievement ($p < .01$), and both men and women "coolers" had superior high school science achievement ($p < .01$). In the same high school subject areas "warmers" had lower achievement. The male "coolers" also had high college achievement in science ($p < .01$). However, generally the "warmers" were the most successful during junior college. They received high grades (both men and women, $p < .01$); the men were high in

leadership ($p < .05$), social science achievement ($p < .05$), and participated in departmental clubs ($p < .05$). The women "warmers" were also high in humanistic achievement ($p < .01$).

Therefore, according to the author, cooling out seldom occurred, while warming up was relatively common. Also, students who cooled out seemed to have been encouraged to continue school because of their high school success, whereas "warmers" were encouraged to continue their education because of their college success. In addition, those students who retained their junior college degree plans came to junior college to obtain training for employment, and apparently, according to the author, were not fired by ambition, partly because they had not participated or achieved as much as other students.

Berman, Y. Occupational aspirations of 545 female high school seniors.
Journal of Vocational Behavior, 1972, 2 (2), 173-177.

Respondents:

Number: 545

Sex: female

Age: high school seniors

Residence: New York City

Date Data Gathered: 1969

Selection: all students graduating from an all-girl public high school in New York City who included information on occupational aspirations in the senior yearbook (85% of the class)

Objectives: To analyze occupational aspiration on the basis of ethnic group and academic achievement.

Methodology: Variables were ethnic group and academic achievement.

Results and Conclusions: The black group showed a preference for nursing; the Puerto Rican and white groups preferred secretarial work; and the Chinese group showed a preference for teaching and bookkeeping. Dietician was selected primarily by blacks, social worker by Puerto Ricans, and typist by Chinese girls. Honor roll students showed a preference for more college-oriented occupations, with the most frequent choices being teacher, secretary, academic sciences, and accountant.

The author concludes that socioeconomic factors limit the perspectives of occupational choice and that more alternatives should be presented to these students.

Binderman, M. B. The failure of freedom of choice: Decision making in a southern black community. Social Forces, 1972, 50 (4), 487-498.

Respondents:

Number: 207

Sex: female

Age: 30-39 (median age)

Residence: Orange County School District, North Carolina

Date Data Gathered: summer, 1968

Selection: 144 nonintegrator mothers were selected by cluster sampling by school from a population of 257 mothers having 969 children in three segregated black elementary schools. The method of selecting the 63 integrator mothers from the two integrated elementary schools was not stated.

Objectives: To determine why some black parents enroll their children in integrated schools and some enroll their children in all black segregated schools, given that both alternatives are equally viable. The study hypothesized that the decision would be related to the level of anomie; powerlessness; mother's education, knowledge of environment, and aspirations for the child; mother's perception of child's need for education; distance difference; facility difference; possibility for complete school desegregation; social approval; parents' valuation of education; and skin color.

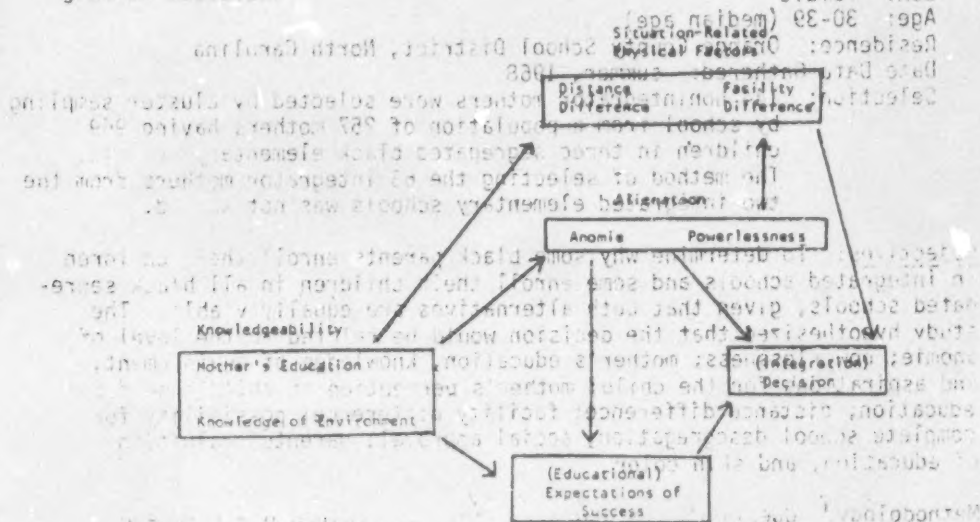
Methodology: Questionnaire and interviews by trained black female interviewers.

Results and Conclusions: The following table summarizes the findings of tests for association of each independent variable and the major dependent variable.

Summary of Present Findings

Variable	Direction	Variable	X ²	Significance Level
Alienation				
Anomie	inverse	integration decision	11.68	between .001 and .01
Powerlessness	inverse	integration decision	9.11	between .001 and .01
Powerlessness	inverse	knowledge of the environment	8.87	between .001 and .01
Powerlessness	inverse	mother's education	18.82	less than .001
Socioeconomic status				
Mother's education	direct	integration decision	25.38	less than .001
Mother's education	direct	educational expectations	27.36	less than .001
Mother's education	direct	educational requirements	18.35	less than .001
Knowledge of the environment	direct	integration decision	46.29	less than .001
Knowledge of the environment	direct	mother's education	23.05	less than .001
Knowledge of the environment	inverse	anomie	12.68	between .001 and .01
Education-related				
Educational expectations	direct	integration decision	24.67	less than .001
Educational expectations	direct	educational requirements	79.83	less than .001
Educational requirements	direct	integration decision	2.31	between .3 and .5
Perception of distance	direct	integration decision	16.97	less than .001
Perception of facility difference	direct	integration decision	10.74	between .001 and .01
Perceived opportunity for complete school desegregation	inverse	integration decision	.52	between .7 and .8
Value of education	direct	integration decision	4.84	between .05 and .1
Other				
Black social approval	inverse	integration decision	.49	between .7 and .8
Dark skin color	inverse	integration decision	4.14	between .1 and .2
White social approval	direct	integration decision	3.22	between .2 and .3

The question of what factors differentiate integrators from nonintegrators could be tentatively answered by the model below. Black parents who tend to be high on indices of knowledgeability, low on measures of alienation, high on educational expectations, and high on physical factors emphasizing differences will most likely make an integration decision.



Block-Recursive Model of Integration Decision

The following table summarizes the findings of the study. The table is organized into two main sections: 'Physical Factors' and 'Social Factors'. Each section contains a list of variables and their corresponding standardized regression coefficients (beta weights) for the integration decision. The table also includes a column for the 't-value' and a column for the 'p-value'.

Variable	Physical Factors	Social Factors	t-value	p-value
Distance Difference	0.15		1.2	0.25
Facility Difference	0.12		0.8	0.45
Anomie		-0.18	-1.5	0.15
Powerlessness		-0.15	-1.2	0.25
Knowledgeability		0.22	1.8	0.10
Mother's Education		0.18	1.5	0.15
Knowledge of Environment		0.15	1.2	0.25
(Educational) Expectations of Success		0.35	3.0	0.01
(Integration) Decision				

Blaikie, N. W. H. Towards a theoretical model for the study of occupational choice. Sociology, 1971, 5 (3), 313-330.

Respondents:

Number: 216 (86 males, 130 females)

Sex: male and female

Grade: college students

Location: Melbourne, Australia

Date Data Gathered: late July and early August, 1968

Selection: male and female, single, full-time students who were enrolled in the "Faculty of Arts" program, and in their third or fourth year at Monash University. Also they were not "overseas" students and, apart from working during vacation periods, they had limited work experience.

Objective: To present a theoretical model for the study of values influencing occupational choice in college students. The author extended two existing theoretical models, those of J. Ford and S. Box and B. Phillips. In addition, four hypotheses were proposed to evaluate the author's model utilizing college students in three occupational subgroups (teaching, journalism, and social welfare).

Methodology: Students were interviewed and given nine broad occupational categories in which they were asked to indicate the occupational category they expected as a career, given the restrictions regarding entry and taking into account their anticipated qualifications (restricted choice). Also, they were asked to indicate what their choice was when they entered the university, and what their choice would be if there were no restrictions (free choice).

Results and Conclusions: According to the author, the data seems to substantiate the following predictions: (1) there is a relationship between religion and goal priorities and occupational choice; (2) when perceived restrictions related to necessary qualifications and entry into an occupation are taken into account, choice is not random and continues to be related to goal priorities; and (3) students who have changed their occupational choice at a university are over-represented among those who have changed their religious affiliation and commitment and place a high value on independence, creativity, and abstract thought. In addition, a significant difference (no probability level stated) between the sexes on three occupational goals of security, leadership, and working with people was reported, with females higher than males in leadership, but lower in regard to the other two aspects. These conclusions were based on medians and percentiles for several occupational categories in comparison to a student's occupational choice upon entering the university, then under "restricted" conditions, and later assuming a "free" choice without restrictions. No other analysis for the data was given in the study.

Blau, P. M., Gustad, J. W., Jessor, R., Parnes, H. S., and Wilcock, R. C. Occupational choice: A conceptual framework. Industrial Labor Relations Review, 1956, 9, 531-543.

This article, which is the result of interdisciplinary collaboration, endeavors to tie together the economic, psychological, and sociological aspects of the process of job choice.

In summary, the main points of this paper are as follows:

1. The conceptual scheme which provides a framework for empirical research may possibly lead to the development of a theory.
2. The social structure is schematically represented as affecting occupational choice in two analytically distinct respects: as the matrix of social experiences which channel the personality development of potential workers, and as the conditions of occupational opportunity which limit the realization of their choices.
3. Although four characteristics of individuals and four occupations have been specified as determinants of occupational entry, two crucial questions are: What developments in the lives of potential workers and in the history of the socioeconomic organization determine these characteristics? What are the processes of choice and selection through which they affect occupational entry?
4. Occupational choice is conceived as a process of compromise between preferences for and expectations of being able to get into various occupations.
5. The authors feel it is necessary to consider occupational choice as a series of interrelated decisions rather than as a single choice.
6. The analysis of the processes by which individuals choose one occupation in preference to others must be complemented by an analysis of the processes by which some individuals, and not others, are selected for a certain occupation.

Blum, S. H. The desire for security: An element in the vocational choice of college men. Journal of Educational Psychology, 1961, 52(6), 317-321.

Respondents:

Number: 404 (346 actually completed the experiment)

Sex: male

Age: 30 or less

Grade: juniors and seniors in college

Location: four colleges and universities in New York and one university in New Jersey

Date Data Gathered: estimated to be in 1960 or 1961

Selection: heterogeneous sample of male upperclassmen

Objective: To ascertain differences among individuals with respect to the degree of importance placed upon a desire for security as a factor in vocational choice, and to determine how this degree of emphasis is related to other pertinent characteristics or variables related to the individual.

Methodology: The Security Inventory developed by the author and the Edwards Personal Preference Schedule were used to measure degrees of security. In addition, a 24-item biographical information questionnaire was employed to obtain some indication of the actual job situation desired by each individual as well as to evaluate personal characteristics and experiences considered pertinent to the study.

Results and Conclusions: Each of the hypothesized expectations were confirmed and, for college upperclassmen, it was concluded that: (1) emphasis upon a desire for security in choosing a job exists as a trait that can be measured reliably; (2) actual choice of a job situation of a secure type is characterized by low, but statistically significant personality correlates, the highest being a desire for order and an avoidance of change. Background correlates associated with a high desire for security in choosing a job or occupation were lower status of the father's occupation ($r = .18$), and frequent religious service attendance ($r = .18$) ($p < .01$ for both). At the .05 level of significance, it was discovered that emphasis upon security in choosing a job shows a tendency to be associated with poor health ($r = .12$), little athletic participation in college ($r = .11$), and a shorter response to the question concerning occupational goals ($r = .11$).

Bordin, E. S., Nachmann, B., and Segal, S. J. An articulated framework for vocational development. Journal of Counseling Psychology, 1963, 10(2), 107-116.

A framework is proposed which attempts to set up a series of dimensions, traceable to infantile physiological functions, which will account for the gratifications which work can offer. Examples of the dimensions are nurturant, oral aggressive, manipulative, and anal. The article illustrated how an occupation can be described in terms of the relative strengths of these dimensions using information gathered from other studies on accounting, social work, and plumbing.

Borow, H. Student decision making: When and how. In K. J. McCaffrey and E. King (Eds.), College/career choice: Right student, right time, right place. American College Testing Program, Monograph 9, 1973.

Borow contends that too many people are attending college whose needs could be better met in other ways and that the role of college in our society and the orientation of counseling should be examined. He draws on various studies in making his points.

More people are getting college and graduate degrees, but the market cannot absorb all these graduates, and they are overtrained for the jobs they get. Borow states that 80% of the jobs in the economy could be handled with a high school background. Yet people have faith in the power of education to solve their problems and are attending college in increasing numbers.

Most studies that are available on how students decide to attend college provide only sparse survey-type information and do not probe into underlying motives. And although student self-image and attitudes toward college have a base in early childhood experiences, most studies are on the college plans of adolescents, not children. Often the resulting explanation is a rationalization after the fact.

Studies have shown that students place a high value on preparation for a career as their purpose in attending college and look to college as a way of identifying suitable work and to obtain training in that field. Studies also show that school counselors devote more time to helping students with locating college information and with program advising than with problems in career development and planning. Borow feels that the vocational components of counselor education programs are inadequate, and that many young people are making decisions on the basis of inadequate information.

Bowles, S. Understanding unequal economic opportunity. American Economic Review, Papers and Proceedings, 1973, 63, 346-356.

Respondents:

Number: (not stated)

Sex: male

Age: 35-44

Residence: (not stated)

Date Data Gathered: (not stated)

Selection: Data were used from the 1962 Current Population Survey National Opinion Research Center, and other sources.
All subjects were non-Negro and non-farm.

Objectives: To determine the relative contribution of family background, schooling, and intelligence to income and to present a theory of intergenerational immobility based on socialization patterns in the family and schools.

Methodology: A path analysis model is used with the variables of socioeconomic background, genotype, childhood, I.Q., years of schooling, and income.

Results and Conclusions: The correlation between socioeconomic background and income ranged from .35 to .45. The analysis indicated that family socioeconomic background contributed 55% to the correlation, the indirect effect via schooling contributed 39%, and genotype, 4%. I.Q. contributed only 4%.

The author presents a theory of intergenerational immobility to explain how the effect of socioeconomic background operates. He identifies five factors employers consider: cognitive attributes; personality; modes of self-presentation; ascriptive characteristics such as race, sex, and age; and credentials. Certain traits are associated with various levels of jobs. The work of Richard Edwards is cited which showed that respect for rules was most important at the lower occupational levels, dependability appearing strongly for middle levels, and internalization of the norms of the firm predicting supervisor ratings at the higher levels. The author argues that the family and the school socialize the child in such a way as to allocate attributes on the basis of socioeconomic background, thus reproducing status differences among families from generation to generation.

Brookover, W. B., Erickson, E. L., and Joiner, L. M. Educational aspirations and educational plans in relation to academic achievement and socioeconomic status. School Review, 1967, 75(4), 392-400.

Respondents:

Number: 377

Sex: male

Race: Caucasian

Residence: a midwestern city

Grade: high school

Date Data Gathered: 1961-1965

Selection: students: (1) in the school district since the 8th grade; (2) regularly promoted; (3) who had not participated in special education programs of any type; (4) with questionnaire data available for grades 8, 9, 10, and 11; and (5) with complete school achievement records for the four years.

Objective: To delineate the function of educational aspirations and educational plans in relation to academic achievement and socioeconomic status among high school students enrolled in three different high schools in the midwest.

Methodology: Assessment of socioeconomic status (SES) was made on the basis of the student's report of the occupation of his father using the Duncan scale values. Educational aspiration level (ASP) and educational plan level (EP) were determined through the authors' code of student responses to certain questions. Academic achievement was defined as a student's grade point average (GPA) in English, social studies, math, and science.

Results and Conclusions: Findings revealed that educational aspirations and educational plans are positively correlated with both academic achievement and SES ($p < .05$). However, educational plans correlated better with achievement (.33, .32, .31, .30) and SES (.29, .26, .30, .23) than with educational aspiration (GPA .35, .22, .25, .23), (SES .23, .24, .17, .16). Therefore, the authors concluded that educational desires of students and their expectations for the future are clearly separate factors. Of the two, educational plans are more likely to be related to both academic performance and socioeconomic background and the correlations between educational aspirations and achievement and between aspirations and SES could be reduced to near zero when educational plans were statistically controlled for.

Brown, D. Students' vocational choices: A review and critique.
Guidance Monograph Series, 1970, Series IV.

Objectives: Brown critiques over 75 studies, about half of which were conducted in the early sixties. He discusses vocational choice during these stages: early childhood, pre-adolescence, early adolescence, late adolescence, and adult years.

Results and Conclusions: Brown concludes from the results of these studies that:

1. Vocational choice starts earlier than most theorists have believed. By the third grade children start to look at occupations in the same manner as do older boys and girls.
2. Vocational choice occurs over a fairly long period of time and is a highly individualized process.
3. The family is influential in the vocational choice process in both direct and indirect ways. However, Roe's theory regarding early interaction between parent and child was not found to be substantiated.
4. Girls arrive earlier at more realistic choices, are influenced by different factors, enter occupations which are lower in status, and have less predictable vocational choice patterns than boys.
5. Cultural and sociological factors influence vocational choice.
6. Psychological traits such as personality variables, interests, intelligence, and self-concept play a role in vocational choice.
7. Vocational choices, at least through young adulthood, have a high probability of changing before implementation.

Also included is a discussion of the implications for counseling, stressing these points: there should be more occupational exploration and counseling at the elementary level; guidance programs should be designed on an individualized basis to allow for the different needs and different stages of vocational development of the students; parents should be involved in school guidance programs; and counseling should encourage students to look beyond their first choice in making vocational plans.

The book also stresses the need for clearer theoretical bases for studies, better definition of concepts, and a framework for interpreting the results of such studies and their interrelationships.

Brunkan, R. J. Perceived parental attitudes and parental identification in relation to field of vocational choice. Journal of Counseling Psychology, 1965, 12(1), 39-47.

Respondents:

Number: 289
Sex: male
Age: 20
Residence: Iowa
Date Data Gathered: 1962-63
Selection: Psychology classes

Objectives: The author investigated possible relationships between students' probable, possible, and fantasy job choices and degree of identification with parents. It was hypothesized that: (1) the relationship between the three types of job choice and degree of parent identification differs according to the field of choice and which parent is being rated; (2) choices in the service, general cultural, and arts and entertainment fields are accompanied by a high degree of parental concentration; choices in technological areas are accompanied by a high degree of parental acceptance; and choices of scientific careers are accompanied by a high degree of parental avoidance (these terms are derived from Roe, whose theories inspired this hypothesis); (3) parental attitudes toward the three types of job choice will differ depending on what the choices are, what parent is being rated, and which attitude is being considered.

Methodology: Questionnaires, Semantic Differential.

Results and Conclusions: Analysis of the questionnaires and semantic differential responses failed to detect any evidence to support the hypotheses, and they were rejected. People who differ in vocational choice do not seem to differ in degree of identification with their father or mother. There was some evidence that males see themselves as more like their fathers than mothers, however, and that they identify more with an ideal father than their real parent. In this, as in a number of other studies, Roe's theories failed to find support.

Brunkan, R. J. Perceived parental attitudes and parental identification in relation to problems in vocational choice. Journal of Counseling Psychology, 1966, 13 (4), 394-402.

Respondents:

Number: 389

Sex: male

Age: 20

Residence: Iowa

Date Data Gathered: 1962-1963

Selection: Psychology classes

Objective: The author hypothesized that: (1) different types of problems students have in making vocational decisions are related to the degree to which they identify with their parents, and degree of identification depends on which parent is being rated and whether the real or ideal parent is being rated; (2) students who find it hard to make a career decision will tend to be those who identify highly with their fathers, whereas people who have no choice problems will show an average degree of father identification; (3) different kinds of vocational decision problems are related to different parental attitudes, these differences depending on which parent is being rated and/or upon which attitude is being considered.

Methodology: Semantic Differential, Family Relationship Inventory (Brunkan and Crites, 1964), Vocational Choice Inventory (Trow, 1941).

Results and Conclusions: No support was found for any of the hypotheses, suggesting a lack of relationship between parental attitudes and problems in vocational choice.

Burchinal, L. G., Haller, A. O., and Taves, M.J. Career choices of rural youth in a changing society. Report No. 458. Agricultural Exploration Station: University of Minnesota, November 1962.

Objective: To discuss factors which influence occupational choices of rural youth.

Results and Conclusions: Evidence was presented that a decline in opportunity existed for those wishing to choose farming as a vocation in the future. Next, a model for formulating occupational decisions was presented. The crystallization of occupational choices according to the authors involved at least three periods of occupational decision making: (1) choices based on fantasy, (2) tentative choices, and (3) the final trial-stable period of selection. Some generalizations about residential differences in occupational achievement and aspiration, educational aspiration, and occupationally related value orientations and personality characteristics were summarized from the literature. Next, factors influencing occupational choices were discussed. These included the social situation, personality characteristics, and value orientation. In addition, factors were mentioned which differentiated farm-reared boys planning to farm from those planning other careers.

Two frequent first-choice reasons for choosing or not choosing farming as a career were because of interest (53.3% nonfarm plan, 41.2% farm plan) and because of the work environment (11.5% nonfarm plan, 11.6% farm plan). Other first-choice reasons given by those planning to farm were that they were "born on a farm" (10.7%) and that they knew "most about this occupation" (6.7%). However, those choosing nonfarm careers gave the first-choice reason of "good income" (12.6%) and other reasons such as "good working conditions and opportunities for advancement" (8.5%). Also, boys planning nonfarm jobs were apparently more concerned with their ability to do the work than boys planning to farm.

Finally, a discussion was presented regarding the significance of the findings, followed by suggestions for developing and improving educational programs to aid occupational decision making.

Carkhuff, R., Alexik, M., and Anderson, S. Do we have a theory of vocational choice? Personnel and Guidance Journal, 1967, 46, 335-345.

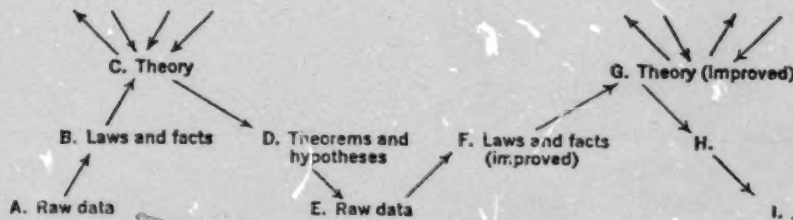


Figure 1. A schematic representation of the inductive and deductive functions of theory

The above scheme for inductive and deductive functions of theory-building is imposed upon the formulation and research of Roe, the Michigan group, Tiedeman and C'Hara, Super, and Holland, with these results: none of the dominant approaches satisfy the established criteria of theory-building. Many of the efforts suffer from their authors' need to continually relate their data to preconceived formulations which do not change with the acquisition of data. According to the authors, continuing empirical and longitudinal efforts and the lower-level generalizations they produce seem to offer the greatest promise for a comprehensive model of vocational development and choice.

Carlin, L. O. Vocational decisions and high school experiences.
Vocational Guidance Quarterly, 1960, 8, 168-170.

Respondents:

Number: 500

Sex: male and female

Age: college freshman

Residence: (not stated) probably students at Central Michigan
University

Date Data Gathered: (not stated)

Selection: (not stated)

Objectives: This study explores the relationships between vocational decisions and selected high school experiences, specifically high school grades, subject of favorite teacher, extracurricular activities, and career education.

Methodology: Questionnaires were used to gather data.

Results and Conclusions: The survey revealed that students ranking high in their graduating high school class had made more definite vocational decisions than low-ranking students. About one-third of the students chose majors in the subject taught by their favorite teacher. No apparent agreement existed among extracurricular activities and choice of major for 70 percent of the students. A majority of the students for which there was a relationship listed physical education as their major. About 40 percent of the students had studied the world of work in a systematic manner while in high school; almost half found it helpful, but the other half felt it was of little or no help.

Carmody, J. F., Fenske, R. H., and Scott, C. S. Changes in goals, plans, and background characteristics of college-bound high school students. American College Testing Program, ACT Research Report, 1972, 52.

Respondents:

Number: 4,009; 8,983; 82,556

Sex: male and female

Age: high school seniors, junior college and four-year college students

Residents: nationwide

Date Data Gathered: 1965 and 1967; 1954 and 1969; and 1966 and 1969

Selection: sample of students who took the American College Test (ACT) assessment

Objectives: This report consolidates and compares the findings of three studies. Variables include students' academic and vocational goals, educational aspirations and expectations, need for financial aid, out-of-class achievements, employment patterns while in college, use of automobiles on campus, and participation in college-related activities.

Methodology: The three studies are based on responses to a short biographical inventory which is part of the ACT assessment. One study was a two-year questionnaire follow-up study of a national sample of junior college students who took the ACT assessment in 1965 and were completing their second year in 1967 (N = 4,009). A second follow-up study was done after four years using information gathered in 1964-65 and in 1969 (N = 8,983). A third study compared a sample of responses on the ACT assessment in 1966 and 1969 (N = 32,351 and 50,205).

Results and Conclusions: The findings support the view that recent groups of college-bound high school seniors are quite similar in terms of educational goals and plans for college life. Data from the two follow-up studies indicate that many high school seniors changed their goals and plans, sometimes drastically, while in college (57.6% in the two-year follow-up, 60.7% in the four-year follow-up). Also, there was a regression effect of students to change from the extremes (two-year degrees and Ph.D.'s) toward the intermediate degree of Bachelor's and Master's.

Students were also presented with a list of 10 goals and asked, "What is your most important goal in attending college?" Three of the goals accounted for 90% of all responses. They were: (1) to secure vocational or professional training, (2) to develop my mind and intellectual abilities, and (3) to earn a higher income.

Carroll, Jr., S. J. Relationship of various college graduate characteristics to recruiting decision. Journal of Applied Psychology, 1966, 50, 421-423.

Respondents:

Number: 211

Sex: male

Age: college seniors

Residence: students matriculating at the University of Minnesota

Date Data Gathered: 1961

Selection: all males in the School of Business Administration who graduated in December 1960 and March, June, July, and August 1961.

Objective: To correlate 19 personal and biographical characteristics of graduating seniors with 5 criteria representing their success in obtaining visit and job offers from companies.

Methodology: Criteria data for this group were obtained by means of postcard questionnaires sent to their homes after graduation.

Results and Conclusions: Of the 19 characteristics of seniors studied, only 3 were significantly related (chi square, $p < .05$) to any of the 5 criteria used. Appearance rank was related to three criteria, marital status to 1, and office experience to 2. An investigation was made of the interrelationships among these 3 characteristics. None of the interrelationships was significant (chi square, $p > .05$).

Clarke, R. H., Gelatt, H. B., and Levine, L. A decision-making paradigm for local guidance research. Personnel and Guidance Journal, 1965, 44, 40-51.

This paper explores the decision-making function of high school guidance services as the basis of a paradigm for local research. The following paradigm is presented. Given that the two requirements of good decision making are the following: the decision-maker needs adequate information, and he needs an effective strategy for analyzing, organizing, and synthesizing that information in order to arrive at a choice, then, a student will need adequate information concerning (1) the possible alternative actions, (2) the possible outcomes of the various actions, (3) the relationships between actions and outcomes, and (4) his relative preferences for the various outcomes. These four categories of information are analyzed in terms of the sequences of educationally and vocationally relevant experiences through which individuals pass. The analysis suggests that the greater the knowledge a student has concerning the possible sequences of experiences that lead from his present situation, the more likely he will be able to direct his development toward the outcomes he desires. This would include knowledge of the nature of the various experiences in the sequences, the major branch points, the factors related to the direction at the branch points, and the probabilities associated with the branch point factors. This informational paradigm suggests the following lines of research: determining areas of weakness in the guidance program where improvements should be made, evaluating program improvements, and collecting information relevant to educational-vocational decisions.

Cohen, E. G., Parental factors in educational mobility. Sociology of Education, Fall 1965, 404-425.

Respondents:

Number: 100
Sex: male
Age: 17
Residence: Massachusetts
Date Data Gathered: 1957
Selection: (not known)

Objective: The general hypothesis was that parental influence is a major factor in a working class boy's decision to go to college. Parents of boys who planned to go to college were compared with parents of boys who had other plans, controls being applied for I.Q. and social class.

Methodology: Interviews, questionnaires, card-sort.

Results and Conclusions: The following parental influence factors were found to be predictors of a boy's aspiring to a college education: (1) occupational factors: father is a foreman ($p < .05$) dissatisfied with his job ($p < .05$); mother holds a white collar job ($p < .01$); (2) status orientation of mother: mother has married downward from a middle class background ($p < .001$); (3) behavioral factors: these included parental pressure for a middle class occupation starting in childhood ($p < .001$) and emphasis on the importance of college to middle class status and rejection of working class jobs ($p < .001$).

Cole, N. S., Whitney, D. R., and Holland, J. L. A spatial configuration of occupations. Journal of Vocational Behavior, 1971, 1, 1-9.

Respondents:

Number: 6,289
Sex: male
Age: 17-18
Residence: 31 United States colleges
Date Data Gathered: 1964
Selection: (not stated)

Objectives: The purpose of the study was to describe the relationship among occupational groups so that persons who are making a career decision could be referred to groups of related occupations.

Methodology: A principal component analysis of student Vocational Planning Inventory (VPI) scores and expressed vocational choices was performed to demonstrate the relationships among the six VPI scales.

Results and Conclusions: The final product was a spatial map on which degree of relatedness among occupations could be represented by distance in the plane. The authors suggest that the map's utility may lie in its helping to indicate which occupations are similar as measured by their proximity. This could provide one way of measuring the relatedness of first and second job interests expressed by a client, or of testing predictions concerning level of differentiation in career interests, employment history, and so on.

Cosby, A. G. and Pico, J. S. Structural models and occupational aspirations: Black-white variations among deep-south adolescents. Journal of Vocational Behavior, 1973, 3(1), 1-14.

Respondents:

Number: 6,500

Sex: male and female

Age: 10th grade

Residence: South Carolina, Georgia, Alabama, and Mississippi

Date Data Gathered: 1966

Selection: stratified samples selected

Objectives: The occupational aspirations of deep-south adolescents were analyzed as they relate to father's education, father's occupation, urban or rural residence, and race.

Methodology: A probability sample, stratified by size and predominant race of school, was used in South Carolina to select the sample. Purposive sampling procedures based on socioeconomic characteristics of counties were employed in Georgia, Alabama, and Mississippi. Interviews were used to obtain information on occupational aspirations. Multivariate techniques for attribute data and the backward elimination procedure developed in regression analysis were used in the analysis.

Results and Conclusions: The results showed that social class indicators accounted for the largest effect estimates ($p < .01$), residence was associated with a smaller, yet statistically significant portion of the variation ($p < .01$), and the effect of race was negligible when controls were applied.

Crites, J. O. Review of D. V. Tiedeman and R. P. O'Hara, Career development: Choice and adjustment. Contemporary Psychology, 1965, 10, 80-81.

In this review, Crites identifies the shortcomings and strengths of the theory of career decision making presented in this monograph. He views the shortcomings as: (1) the authors' commitment to an existential analysis of career development which obscures their unique and significant contributions with a penumbra of surplus meaning; (2) their elliptical logic which is apparent in their attempts to relate career development to other frames of reference; and (3) their lack of effective communication of their theory because of their penchant for literary allusions and complex terminology. The parts of the theory Crites feels have greatest promise for generating future research are those sections on "differentiation and integration" and "observation and career." There is an outline of the steps involved in problem-solving, and the characteristics and stages in work history from early adolescence to late adulthood are delineated. In short, Crites feels the heuristic values of Tiedeman and O'Hara's theory lie not in their existential interpretations of career development, but in their careful, detailed analyses of the decision-making and work processes. Their potential contribution to the filling of the "theoretical lacuna" noted by Ginzberg would be more in the area of conceptualization and research than in any other.

Curry, E. W. and Picou, J. S. Rural youth and anticipatory occupational goal deflection. Journal of Vocational Behavior, 1971, 1, 317-330.

Respondents:

Number: 296 (202 whites, 94 blacks)

Sex: male and female

Grade: high school seniors

Ethnic backgrounds: blacks and whites

Location: rural areas of Louisiana

Date Data Gathered: spring, 1968

Selection: a proportionate, stratified, random cluster sample of seniors enrolled in various high schools in Louisiana. Those that were present on the day of evaluation were included, and no attempt was made to contact those students who were not present.

Objective: To analyze a variety of factors that contribute or cause anticipatory occupational goal deflection (AOGD), which is defined as an incongruence between occupational goals (aspirations) and plans (expectations).

Methodology: Group interviews were conducted in order to complete a questionnaire eliciting information regarding the occupational aspirations and occupational expectations of the students, and a quasi-Guttman scale was devised to assess the goal impedance variable.

Results and Conclusions: The results indicated that: (1) the interaction of race and father's education with occupational aspirations was significant ($p < .01$), but neither race nor father's education were separately significant, implying some degree of confounding between the variables; (2) blacks whose fathers attained less than high school graduation have higher aspirations than whites ($p < .05$); and (3) in all categories with father's education greater than high school completion, whites demonstrated significantly higher aspirations than blacks ($p < .05$). In addition, the interaction of race by community size produced statistically significant differences ($p < .025$). Blacks coming from rural farm areas had greater mean AOGD than their white counterparts. However, in every other residence category blacks demonstrated lower mean deflection than whites. Also, it was noted that the intervening variable of goal impedance demonstrated stronger although not significant direct effects on expectation and AOGD than on aspirations.

Davis, J. A. The campus as a frog pond: An application of the theory of relative deprivation to career decisions of college men. American Journal of Sociology, 1966, 72 (1), 17-31.

Respondents:

Number: 33,782

Sex: male

Grade: graduating college senior males

Residence: various colleges and universities throughout the U.S.

Date Data Gathered: not stated and difficult to estimate

Selection: derived from 135 colleges and universities, with students who scored well on the National Merit Scholarship Test, i.e., high-scoring students selected in terms of scholastic ability.

Objective: To evaluate the relationship between academic performance and career choice.

Methodology: The National Merit Scholarship Test results were consulted, and the Academic Performance Index (a questionnaire) was developed because pre-college scores on the National Merit Test were not available. Students' college grade point averages (GPAs) were obtained through respondents' self-reports. Further evidence of academic performance was the intellectual caliber of the student body of the institution attended (school quality). In addition, information was gathered regarding a student's choice of careers.

Results and Conclusions: The results indicate that generally GPAs show stronger correlations with career choice (+.264) than does a measure of the intellectual caliber of the student body/school quality (+.023) although both are equally related to tests of scholastic aptitude (school quality--.611 and .537 and GPA--.625 and .646 respectively). According to the author, the findings suggest the operation of "relative deprivation," that is a tendency for students to evaluate their academic ability by comparing with their fellows on the same campus rather than with the national pool of undergraduates. At the individual level, the author challenges the notion of suggesting that students should enroll in the best colleges or universities possible, if, when doing so, it is fairly certain that they will end up in the bottom ranks of the graduating class. The major thesis of the article is that the feeling of success (high GPA) is a crucial ingredient in career choice, and that being a "big frog in a small pond" has a more positive effect on career aspirations than "being a small frog in a big pond."

Day, H. I. Intrinsic motivation and vocational choice. Journal of Psychology, 1972, 81 (1), 3-6.

Respondents:

Number: 96

Sex: male and female

Age: undergraduate community college students

Residence: metropolitan Toronto, Canada

Date Data Gathered: not reported

Selection: a number of community colleges of Applied Arts and Technology

Objective: This report explores the relationship between intrinsic motivation and vocational choice.

Methodology: 96 students completed the Ontario Test of Intrinsic Motivation (OTIM) and the Kuder Preference Record (KPR), Form C, in one session. The KPR, Form C is a forced-choice test designed to identify the directions of interest and indirectly degrees of difference among 10 alternatives. The OTIM measures not only directions of interest, but also overall level of curiosity and level of interest. The 10 interest areas of the OTIM are outdoor, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical.

Results and Conclusions: The correlations obtained between the 10 interest areas of the OTIM and the KPR show that in half the cases the correlations obtained between the 2 tests in the same areas were highest in their respective columns and rows. In the fields where the correlation was not the highest, the differences between it and the others were fairly small. Of special interest is the examination of the differences in size of the correlations in the diagonal, for they vary from a fairly high correlation of .588 (OTIM - artistic and KPR subscale 6) to a nonsignificant .175 (OTIM - persuasive and KPR subscale 5). If we assume that one of the motivations for a high score on a particular interest area on the KPR is intrinsic, then the level of correlation obtained between the two tests for that particular subscore may indicate to what extent this interest is intrinsic. In the persuasive area, the correlation between the two tests failed to reach statistical significance, suggesting that intrinsic reasons for entering this field of occupation are minimal. In the artistic as well as computational areas, people may seek a great deal of intrinsic satisfaction, reflected in the higher correlation. The results of this study suggest that using the KPR and OTIM together may not only identify the directions of interest, but may also give some indication of overall level of interest in general, the level of interest in each vocational area compared to the general population, and the proportion of intrinsic component in any vocational interest.

Day, S. R. Teacher influence on the occupational preferences of high-school students. Vocational Guidance Quarterly, 1966, 14, 215-219.

Respondents:

Number: 116
Sex: 64 male and 52 female
Age: senior high school students
Residence: rural area of Oregon
Date Data Gathered: (not stated)
Selection: all senior students of the high school

Objectives:

1. To determine the percentage of students who are influenced by a teacher;
2. To determine whether students use teachers as a vocational model for occupational preference;
3. To determine those areas in the school which seem most conducive to teacher influence.

Methodology: A questionnaire was administered asking each student the following questions:

1. What occupations are you presently considering?
2. Do you know anyone in the area above who has influenced you? Check the response that best indicates your relationship to this person. a. Very Close Friend b. Teacher c. Relative d. Other
3. Has any person outside of this area influenced you? Check your relationship to this person. a. Very Close Friend b. Teacher c. Relative d. Other
4. If your choice was not influenced by a person, comment on how you arrived at this decision. If the student considered a specific teacher as the only influencer and the student planned to enter an occupation similar to or the same as that teacher's, the teacher was classified as being the model for the student. If a teacher was reported as the predominant influence with other factors also contributing to the preference, the teacher was classified as having a major influence on the student. If the teacher was reported as being of some influence but other factors were more important in the student's preferences, the classification of minor influences was used. Other possibilities, where the teacher was not mentioned, were classified under the heading of no influence.

Results and Conclusions: The data indicated:

1. Some students do choose teachers as vocational models. It was found that 6% of the students in this study modeled a teacher in their vocational preference (6% boys, 11% girls).
2. The teacher exerts influence on the vocational plans of many students---44% of the students in the sample.
3. Boys were significantly more influenced by teachers than were girls. (55% of the boys, 31% of the girls (x^2 , p. 0.02).
4. The teacher influence was generally proportional to the amount of formal training required for the occupation. The teacher influenced college-bound students in 60% of the cases, trade school training students 34%, and the no-formal-training group 20%.

Dilley, J. S. Decision-making ability and vocational maturity.
Personnel and Guidance Journal, 1965, 44, 423-427.

Respondents:

Number: 174

Sex: male and female

Age: high school seniors

Residence: metropolitan area in the midwest

Date Data Gathered: (not stated)

Selection: students randomly selected from 4 high schools

Objectives: To describe the development of an instrument measuring decision-making ability (DMI) and the relationship of scores on this instrument to these three correlates of vocational maturity: intelligence, achievement, and participation in extracurricular activities.

Methodology: The following information was gathered: (1) scores on the DMI--a 40-minute questionnaire with sample problems and alternatives, (2) scores in the Minnesota Scholastic Aptitude Test (MSAT), (3) high school rank, and (4) frequency of participation in extracurricular activities.

Results and Conclusions: High scores on the DMI were associated with high MSAT scores (F ratio of 3.21); with high school rank (chi-square value was 16.4, significant beyond the .01 level, $df = 6$); and with extracurricular activities (chi-square value was 19.8, significant beyond the .01 level, $df = 6$).

Dixon, P. W., Fukuda, N. K., and Ignacio, R. Prediction of post-high school destination choice from curriculum, financial need, and students' ratings of parents wishes for post-high school occupation. Journal of Experimental Education, 1972, 41 (2), 18-22.

Respondents:

Number: 2,431
Sex: male and female
Age: 10th, 11th, and 12th grades
Residence: Hawaii
Date Data Gathered: not stated
Selection: all high school students on the island of Hawaii

Objectives: The hypotheses of the study were that the more rural the high school location, vocational-technical or less academic the high school education, and the greater the financial need, the more likely the student is to plan a less-college oriented post-high school destination.

Methodology: A survey was made of students attending high school on the island of Hawaii. About 4,000 survey forms were distributed and complete records were obtained for 2,431.

Results and Conclusions: Data indicated that students' plans correlated with their parents' wishes for post-high school occupation (.56). Females chose more academic post-high school destinations than males. There was an inverse relationship between academic high school curricula and post-high school academic goals, indicating that quite a few college preparatory students prefer non-college post-high school destinations and that many vocational students have academic post-high school plans. The need for financial assistance tended to decrease academic aspirations ($f = 8.66$, $p < .01$).

Dole, A. A. Factors in educational decisions among public school pupils. Psychology in the Schools, 1969, 6 (1), 73-79.

Respondents:

Number: 1,799

Sex: male and female

Age: high school freshmen and seniors

Residence: Hawaii and Oakland, California

Date Data Gathered: (not stated)

Selection: three samples were selected to provide a heterogeneous group in terms of sex, educational level, locale, socioeconomic characteristics, aspirations, etc.

Objective: To identify some of the major factors which are associated with educational decisions.

Methodology: A group-administered inventory was used to measure values, interests, and influences which might be associated with educational decisions. Students were asked about their educational plans and the reasons for these plans. Thirty-two variables were identified and inter-item correlation coefficients (phis) were computed for all pairs.

Results and Conclusions: Eight major factors were identified: conformity, academic value, material value, altruistic value, school influence, experience, science interest, humanities interest. These fifteen subfactors had a significant loading ($p < .05$) on all factor analyses: influence of parents, relatives, and teacher; value of security, potential income, advancement, serving others, self-improvement, parenthood, specialization, and satisfaction; interest in numbers, science, or children; and influence of hobby.

The author concludes that the educational decision process is multifactor and multidimensional.

Drew, D. E. and Astin, A. W. Undergraduate aspirations: A test of several theories. American Journal of Sociology, 1972, 77 (6), 1151-1163.

Respondents:

Number: 4,415

Sex: male and female

Grade: college sophomores

Residence: various colleges and universities throughout the United States

Date Data Gathered: not stated, and difficult to estimate

Selection: data bank from the Cooperative Institutional Research Program (CIRP) being conducted by the Office of Research of the American Council on Education. The data were specifically obtained from the cohort that entered college in 1966 and received a follow-up in August, 1967. The students were randomly selected from this pool.

Objective: To evaluate the theory of relative-deprivation which was reintroduced and reinterpreted by Davis in 1966, and the environmental-press theory proposed by Thistlethwaite and Wheeler in 1966. Also, the authors felt neither of the above theories by themselves adequately explained career aspirations, but hoped that they might further develop these models by exploring the conditions under which they would or would not operate.

Methodology: Initial forms were completed by students as freshmen and their freshman grades and test scores, provided by the registrar, were reviewed. In addition, they were requested to complete a follow-up questionnaire.

Results and Conclusions: The theory of relative-deprivation explains career choice as more related to college GPA (a local measure of performance) than to school quality (a measure that reflects the national distribution). On the other hand, the environmental-press theory maintains that enrolling in a quality school (being very selective) should positively affect aspirations, since an undergraduate will perform best and aim highest at a school where most of his fellow students have high aspirations and are academically superior.

The present study indicates that relative-deprivation theory receives strong support ($p < .05$) for academic performance in college, as reflected by a student's grade point average in prediction of self-concept as well as college aspiration ($p < .05$). However, the environmental-press theory receives equivocal support ($p < .05$ for self-concept, $p < .05$ for aspiration prediction). Therefore, while it is true that selective schools affect students' grades negatively, indicating that the relative-deprivation theory does operate, the findings indicate that being enrolled in a selective school has a positive effect on career aspirations and is often significant ($p < .05$), which suggests the operation of the environmental-press theory. The authors

state that their findings support the contention that a complete theoretical model should allow for the simultaneous operation of both theories in a complex pattern, and a choice between the two should be avoided. Also, they contend further study needs to be conducted to determine the impact of additional variables, and that the counselor and counselee must take individual differences into consideration before deciding to enroll in a particular college.

Elliott, J. L. Family structure and college plans of siblings from the blue collar families. (Doctoral dissertation, University of Pittsburgh, 1968.) (University Microfilms No. 68-12, 671)

Respondents:

Number: 481

Sex: male and female

Grades: 7 through 12

Location: Pittsburgh, Pennsylvania

Date Data Gathered: during the 1965-1966 academic year

Selection: students who were either an "only child" or had a sibling(s) in attendance in the public school. Twins, Negroes, and third siblings (a sibling from the same family in which two older siblings were present) were omitted. Thus, the population consisted of 71 children from single-child families and two siblings from 205 families.

Objective: To assess the relationship between family structure and college expectations of siblings. The familiar finding of an inverse association between family size and educational attainment is examined with respect to the age interval between siblings, sex, and ordinal position; inasmuch as these aspects of structure may serve as possible determinants of life changes and socialization experiences relevant to educational horizons.

Methodology: School records were used to obtain demographic information; family structure data; birth ordering within the same sibship, its sexual composition, and size; marital status of the parents and presence of step-parents; and sibling deaths and adoptions. A questionnaire was also used to tap much of the kind of information reported above. Course grades and intelligence scores for each student were also recorded. The former were used as achievement measures. Social class was measured by the Hollinghead Two Factor Index of Socioeconomic Status. All other variables were measured by Guttman scales with the following exceptions: intelligence (Stanford-Binet), achievement data (teacher grades); and level of education expected, social class estimate, discussion of plans, perceived parental expectations, and friends' plans (single items).

Results and Conclusions: The results suggested that:

(1) Social class is related positively ($p < .001$), and family size negatively ($p < .05$) to the college expectations of siblings. The family size relationship was most pronounced in the unskilled blue collar group ($p < .01$).

(2) Child spacing and ordinal position tend to be important to the college plans of females (no significance level reported). If a female is at most two years older than her sibling, 11% of both siblings will expect college as opposed to 30% when separated by more than two years. If an older female sibling is a first born, 29% will expect to continue their education as will a younger sibling; when the older female is not a first born, the percentage is 12%.

(3) A sibling expecting college tends to have higher intelligence ($p < .05$ for older sibling, $p < .01$ for younger sibling), science grades ($p < .01$ for younger sibling), and social class estimates ($p < .05$ for both older and younger siblings) than one not intending to continue past high school. Furthermore, his college expectations are similar to that of his parents and friends ($p < .01$ for both younger and older siblings).

(4) If the sibling expecting college is the older of the pair, he or she tends to have higher self-esteem ($p < .01$), lower alienation ($p < .05$), and to be more accepting of parental discipline than younger siblings ($p < .01$). On the other hand, if the sibling expecting college is the younger of the two, this sibling is distinguished from the older with respect to being more idealistic regarding his evaluation of education ($p < .05$).

The author concludes by indicating the implications the above findings suggest for an individual's position in the social structure and the effects upon personality and social mobility.

Elton, C. F. and Rose, H. A. Male occupational constancy and change: Its prediction according to Holland's theory. Journal of Counseling Psychology, 1970, 17(5, Pt. 2), 1-19.

Respondents:

Number: 530

Sex: male

Grade: college students

Location: University of Kentucky

Date Data Gathered: in 1965 as entering freshmen, and in 1969 as graduating seniors

Selection: sample from the entire graduating class of 1969 for whom freshman test data were available.

Objective: To determine if immigrants (those whose senior choice falls within a different category from their freshman choice) to a specific occupational category resemble persisters in that category (those whose senior choice is the same as their freshman occupational choice) in terms of personality structure more than they resemble students in the abandoned occupational category. Therefore, the purpose of the study was to ascertain whether students' occupational choices were associated with personality in the manner proposed by Holland. In actuality, the authors were examining the construct validity of Holland's theory of vocational choice.

Methodology: Data for the study were gathered in three principal ways: (1) the Omnibus Personality Inventory (OPI), Form C, which was modified by deriving factor scores that corresponded to Holland's six occupational categories/personality types; (2) the American College Testing Program (ACT) which contained a composite score and indicated the occupational choice expressed by entering freshman students; and (3) graduation records which denoted senior occupational choices. Occupational choices, both freshman and senior, were classified according to Holland's occupational categories.

Results and Conclusions: Conclusions of the study were: (1) Senior occupational choice is more efficiently predicted on the basis of expressed occupational choice as a freshman (49% - 87%) than it is by personality and aptitude measures (9% - 41%). (2) Personality and ability variables differentiated between occupational categories for all seniors and persisters (Masculine Role, Scholarly Orientation, and Composite ACT, all at $p < .01$). The Composite ACT score alone ($p < .01$) was the differentiating variable for immigrants. (3) There was no significant difference between persisters and immigrants in each occupational choice; however, the results imply that characteristics of an occupational group are more a function of the persisters in that group than of the immigrants into it. (4) Partial support was found for Holland's assumption that students transferring from an original occupational choice to a similar category (adjacent on the hexagon) differ from those transferring to a more remote choice. However, the authors limit their certainty because of their relatively small sample size.

Featherman, D. L. A research note: A social structural model for the socioeconomic career. American Journal of Sociology, 1971, 77 (2), 293-304.

Respondents:

Number: 715

Sex: male

Age: adults

Residence: seven metropolitan areas

Date Data Gathered: 1957, 1960, 1963-67

Selection: (not known)

Methodology: Questionnaires

Results and Conclusions: The author argues for structural models which better represent the "historical" quality of work careers. A path model of occupational attainment over the life cycle which includes changes in the status attainment process for a cohort is discussed. Rules of paternal occupation, respondents' education, and prior occupational and income attainments are considered.

Fingerit, Tobin, and Mast. Research and current vocational programs in vocational guidance. Communication in Guidance Project: University of Pittsburgh, 1967. (Contract No. OE 6-85-052)

This paper reviews a number of empirical correlational studies concerning aspects of occupational orientation. Some of the independent variables were: cultural determinants, racial and ethnic group differences, sex differences, and community environment. Eleven studies correlated socioeconomic status to such dependent variables as: occupational choice, aspirations, and attitudes. All these studies pointed up the importance of family socioeconomic status in relationship to occupational choice. Also mentioned in this section are the early empirical studies of Ginzberg from which he later formulated his theory of occupational choice. Four cross-cultural studies were examined with aspirations and values as dependent variables. These studies suggested the existence of racial and ethnic differences in achievement and other attitudinal components of work. Eight studies correlating sex differences with attitudes toward work and good worker morale were discussed. The results of these studies were conflicting. Ten studies which correlated community environment with level of aspiration were presented. Most of the studies found that community and school type and aspiration level were correlated.

Flanagan, J. C., Project TALENT: The identification, development, and utilization of human talents, the American high school student. Report No. CRP-635. University of Pittsburgh, 1964.

Respondents:

Number: 440,000

Sex: male and female

Age: high school students, grades 9-12

Residence: United States

Date Data Gathered: spring of 1960

Selection: a stratified random sample of American high schools, testing all students in these schools

Objectives:

1. To obtain a national inventory of human resources
2. To develop a set of standards for educational and psychological measurement
3. To provide a comprehensive counseling guide indicating the patterns of aptitude and ability which are predictive of success and satisfaction in various careers
4. To formulate a better understanding of how young people choose their life work
5. To identify the educational experiences which better prepare students for their life work

Methodology: The TALENT test battery, which requires two days of testing time, was administered to 440,000 secondary school students. The battery consists of numerous aptitude and achievement tests and three questionnaires concerning background occupational interests and personality. These students were to be followed up by means of questionnaire one, five, ten, and twenty years after graduation.

Results and Conclusions: Some findings from the test data were:

1. 20 to 30% of students in grade 9 know more about many subject-matter fields than does the average student in grade 12.
2. The top 5% of students in a grade can learn the English meaning of at least twice as many foreign words as the average student in the same period of time.
3. Sectional differences are noticeable. Students in the Northeast tend to be above the national average and students in the Southeast below average.
4. Less than half of 12th grade students understand subtler ideas in paragraphs from the writings of selected authors.
5. The average high school student apparently doesn't solve simple reasoning problems as well as he memorizes simple rules and applies them.
6. Differences in the relative levels of informalities an individual displays often reflect his pattern of interests more than his patterns of abilities.

7. Amount of formal training in an area or informal exposure to it plays some part in determining the amount of information he acquires in the area.
8. Most sex differences that have been found in patterns of information reflect differences in interests.
9. The fact that differences in ability within grades are so great in comparison with differences between grades is a strong argument in favor of the individualization of instruction to the full extent that facilities and staff time can be made available for it.

Flanagan, J. C. Project TALENT: Five years after high school and appendix II. Final report. Pittsburgh: University of Pittsburgh, American Institutes for Research, 1971. (Bureau No. BR-50606 Grant OEG-09-610065-1367(085).)

Respondents:

Number: 35,000
Sex: male and female
Age: five years after graduation from high school
Residence: United States
Date Data Gathered: 1965
Selection: those who were high school senior subjects in 1960 and responded to the five-year questionnaire

Objectives:

- (1) To obtain information about the educational attainments, jobs, and career plans of students five years after high school.
- (2) To compare the occupational choices of students one year after graduation to the choices made five years after graduation.

Methodology: Questionnaires were mailed to the original representative sample of students who were high school seniors in 1960. About one-third of the original sample responded. Responses were then obtained from a representative sample of the remaining non-respondents. A representative sample was selected (about 4%) and these non-respondents were located and contacted to secure their answers to questionnaire items. These answers were weighted appropriately. Responses were later put on IBM cards and then transferred to tape.

Results and Conclusions:

- (1) Students with higher academic aptitudes and socioeconomic status obtain more education.
- (2) Many shifts which take place in occupational choice occurred by the time of the one-year follow-up and these trends continued by the time of the five-year questionnaire.
- (3) There is little stability of career choice over the five-year period after high school and only about one student in five enters the occupation he chose in high school.
- (4) Failure to obtain education after high school is inversely related to discussion of college with guidance counselor.
- (5) There is a strong tendency for college prep students to attend college and for students in terminal curricula not to attend college. Once they have entered, students from non-college prep courses are more likely than others to leave college.
- (6) The students expressed choice in high school is roughly as accurate as his test score in predicting his final major in college.
- (7) Education or lack of it is strongly related to satisfaction or regret. Very few respondents who went to college regret doing so, but a sizable number who did not go wish they had.
- (8) Men's yearly salaries are about \$600 higher than women's; men with some college education earn about \$400 to \$500 more per year than men who did not attend college, and women who have been to college earn about \$1,000 more per year than women who did not attend college.
- (9) For women, there is no relation between academic ability and being a smoker or nonsmoker, whereas for men there is a slight tendency for those with higher academic ability never to have smoked.

Flanagan, J. C. The first 15 years of project talent: Implications for career guidance. Vocational Guidance Quarterly, 1973, 22 (1), 8-14.

In this article, results of the 10-year follow-up are discussed. One of the most important findings from this study was a definite increase in the realism of career choices among high school boys. Another important finding of this survey was that in terms of reading comprehension scores, the small number of girls selecting scientific and professional careers in 1960 had patterns and levels of abilities that were more realistic than those for the boys selecting similar careers. The girls showed less improvement over this period and in 1970 they are less realistic than boys in their choices of careers. The Career Data Book is discussed with recommendations of ways it may be useful to counselors.

Forslund, M. A. and Malry, L. Social class and relative level of occupational aspiration: Implications for delinquency and education. National Association of Secondary School Principals, 1970, 54 (349), 106-115.

Respondents:

Number: 242

Sex: male

Grade: seniors in high school

Location: Albuquerque, New Mexico

Date Data Gathered: could not be determined

Selection: male students from two high schools in New Mexico who were originally part of larger study determining the aspirations of youth

Objective: To determine if students toward the top of the socioeconomic hierarchy aspire toward more prestigious occupations than those toward the bottom, and to ascertain if the distance between the prestige of the father's occupation and that aspired to by his son increases as one moves down the socioeconomic hierarchy.

Methodology: Unlike a previous study where the father's occupation was used as an indicator of socioeconomic status, the present study seeks the social class position of each student through the use of Hollingshead's "Two Factor Index of Social Position." Also, the Duncan "Socioeconomic Index" was employed to assess the occupational level aspired to by the student, and to obtain a measure of the prestige of the father's occupation.

Results and Conclusions: The results indicated that the number of students aspiring to the highest prestige level positions declines as one moves from the "highest" to the "lowest" class groups ($p < .001$), while the proportion of students aspiring to middle and lower prestige occupations increases. Also, the proportion of 12th grade males expecting to enter occupations with lower socioeconomic index scores than their fathers' decreases from the "highest" to "lowest" social class groups ($p < .005$).

Therefore, it was concluded that those at the top of the socioeconomic hierarchy do aspire toward more prestigious occupations, but usually below those of their fathers. In addition, the distance between the prestige of the father's occupation and that aspired to by his son increases as one moves down the socioeconomic hierarchy.

Freeman, R. B. and Breneman, D. W. Forecasting the Ph.D. labor market: Pitfalls for policy. Technical report no. 2. Washington, D.C.: National Board on Graduate Education, April 1974.

In this paper, the authors review purposes, techniques, and potential methods of analyzing the doctorate labor market. Chapter 1 focuses on problems of the doctorate labor market during the 1960's and early 1970's. During this period, the number of Ph.D.'s increased greatly while the demand decreased. At the same time, numerous forecasts were made of an impending labor market crisis for Ph.D.'s during the 1980's. The federal government reacted by reducing by 85% the number of graduate students receiving federal fellowship and traineeship support during this same period of time.

In Chapter 2, a list of the shortcomings of current forecasting techniques is provided. They are: (1) the complete absence of wages or prices in this process, (2) the treatment of the likely responses of individuals to prospective samples and shortage disequilibria, (3) the rarity with which market outcomes are linked to policy alternatives, and (4) the lack of examination methodologies of the interactions and feedback among economic phenomena which constitute economic reality. The authors felt a superior methodology would take into account the adjustment responses of individuals and market interactions in the context of an econometric model of the manpower market similar to those used for forecasting national economic developments.

Chapter 3 describes six forms of individual, university, employer, and governmental response to changes in the doctorate labor market, shows how these responses can affect forecast variables, and sketches a scenario of adjustment to current and future Ph.D. labor market imbalances.

Chapter 4 is concerned with policy implications of the analysis and suggests the following steps to be considered as directions for further investigation: (1) There should be a gradual change in federal and related policies as opposed to sharp sweeps in support for graduate training and Ph.D. work activities; (2) There should be improved and more up-to-date information, organized in a fashion useful for policy making in order to monitor trends affecting the labor market; (3) There should be disaggregated, field-by-field labor market analyses; and (4) Given that relative Ph.D. and academic salaries will and should decline in the future as the result of the supply-demand imbalance, there should be different ways of reducing relative salaries, ranging from possible alternatives to tenure rules to early retirement. This paper also includes two technical appendices dealing with (a) the economics of shortages and surpluses and (b) models of the market adjustment process.

Gelatt, H. B. and Clarke, R. B. Role of subjective probabilities in the decision process. Journal of Counseling Psychology, 1967, 14, 331-341.

The central thesis of this paper is that subjective probability estimates play a crucial role in the decision-making process. In addition, this role may be sufficiently pervasive to suggest that subjective probability estimates may be an integral part of the educational-vocational decision-making process, even when the student lacks sufficient information upon which to base these estimates. Thus, the need is for school guidance programs to provide students with objective data which is relevant to the important decisions to be made and to present such data in a powerful way in order to influence these subjective estimates. Decision making has proposed that a student should use specific relevant information in formulating estimates of how likely it is for him that certain actions will lead to certain outcomes. These outcomes are necessarily subjective in that they are a result of the student's own interpretations of whatever data are available. The authors conclude that a primary function of an effective guidance program is the gathering and organizing of a broad base of relevant factual data to be used by students in formulating realistic probability estimates.

Gintis, H. Education, technology, and the characteristics of worker productivity. American Economic Review, Papers and Proceedings, 1971, 61, 266-279.

The objective of the paper is to demonstrate that the contribution of schooling to worker earnings and status cannot be explained by the relationship between schooling and the level of cognitive achievement, but rather noncognitive personality characteristics have a direct bearing on worker earnings and productivity and the social structure of school facilitates the development of certain personality characteristics.

The author presents a Cognitive Model of education's contribution to worker earnings and status and an Affective Model, both expressed in a linear regression model. He draws from a number of studies to find evidence relating to these models. He finds little support for the Cognitive Model, but does cite studies which lend credence to the Affective Model. He contends that both structure and pattern of reward in schooling conform to the requisites of adequate job performance in organizations. Four types of personality requisites are discussed: subordinancy, discipline, supremacy of cognitive over affective modes of response, and motivation according to external reward.

C-100

Ginzberg, E. Toward a theory of occupational choice: A restatement. Vocational Guidance Quarterly, 1972, 20, (3), 169-176.

A reformulation of the Ginzberg, Ginsburg, Axelrad, and Herma position originally elaborated in their Occupational Choice: An Approach to a General Theory (New York: Columbia University Press, 1951). Social changes over the course of two decades, considered together with new information regarding variables that influence career decisions, stimulated a revision of three key elements in the original theory. The original theory asserted that occupational choice is a decision-making process that is irreversible and which culminates in compromise. The decision-making process is now viewed as potentially open-ended, continuing throughout the course of an individual's working life and not limited to the early years of work as was formerly asserted. Changes in the kinds of satisfaction one derives from work, alterations in family circumstances or new job pressures may cause a person to look for new options. Consistent with the extension of choice is the realization that career decisions no longer seem as "irreversible" as they once did. A person now has the option to prepare for more than one career over the years. Finally, occupational choice is now seen as a process of optimization rather than "compromise." People make their decisions about careers with the intention of optimizing their satisfactions by finding the best fit between their needs and the opportunities that confront them.

Thus, the reformulated theory now states that "occupational choice is a life-long process of decision-making in which the individual seeks to find the optimal fit between his career preparation and goals and the realities of the world of work."

The author calls for further research into social and institutional constraints on the individual's decision-making process.

Gottlieb, D. Youth and the meaning of work. Manpower Research Monograph, 1974, 32.

Respondents:

Number: 1,860

Sex: male and female

Age: 4/5 were ages 21 and 22

Residence: (not stated)

Date Data Gathered: 1972

Selection: subjects were graduating seniors who attended five different colleges and universities in Pennsylvania. Method of selection not specified.

Objectives: To determine the post college attitudes, aspirations, and expectations of contemporary college seniors concerning work and family life. To provide data for those committed to finding a more humane, dignified, reliable way of helping youth search for satisfying and productive work.

Methodology: Subjects responded to questionnaires and personal interviews.

Results and Conclusions: The author felt the findings were too many and too complex to summarize in detail. In general, the classes of 1972 seemed to hold a positive and fairly enthusiastic attitude toward work. Despite some apprehension and self-doubts about the future, they were ready to begin work and pursue career goals. They held high expectations for both work and their private lives. How realistic they were in their expectations and how successful they will be in achieving their aspirations remain open questions.

Greenhaus, J. H. Self-esteem as an influence on occupational choice and occupational satisfaction. Journal of Vocational Behavior, 1971, 1, 75-83.

Respondents:

Number: 228
Sex: male and female
Age: 19.8
Residence: United States
Date Data Gathered: 1970
Selection: education and nursing classes

Objectives: The author proposed a test of hypotheses derived from Super's self-concept theory: (1) Freshmen and sophomores who rate themselves favorably on the Self-Assurance Scale of the Self Description Inventory (Ghiseli, undated)--high self-esteem--will be more likely to rate themselves high on traits they see as necessary to their chosen vocation than will students who rate themselves low on the self-assurance measure. (2) People who see their personal traits as well-suited to their vocational choice will express more satisfaction with that choice on a job-satisfaction scale than will people who see themselves as not well-suited to their chosen career. (3) Low self-assurance persons will tend to judge the satisfaction levels of other students who have chosen the same career to be like their own, whereas high self-assurance students will not. (4) Low self-assurance students' ratings of their chosen career's prestige level will be positively related to the amount of satisfaction they express with their choice. (5) Low self-assurance students' ratings of the degree to which their parents and friends approve of their career choices will be positively related to the degree of satisfaction they express with that choice.

Methodology: Questionnaires.

Results and Conclusions: (1) The predicted consistency between self-assurance (self-esteem), self-concept, and perception of career requirements was not confirmed. (2) Low but significant positive correlations ($r = .30, p < .01$) were observed between degree of self-occupational consistency and career satisfaction for high assurance students but not for the others. (3) Low self-assurance students tended to see others who chose the same career as deriving similar levels of satisfaction from it ($r = .32, p < .01$). (4) Prestige-satisfaction consistency was higher for the low assurance group ($r = .31, p < .01$) than for high students. (5) There was some evidence that friends' approval was more directly related to satisfaction for the low assurance students but the correlations did not differ significantly between the two groups. Although the data fail to provide conclusive support for Super's self-concept or implementation theory, there is some suggestion that persons low in self-assurance (low self-esteem) rate opinions of others higher than their own and thus may be more influenced by social cues than might persons higher in self-esteem. The author suggests that future research focus on "task-specific" self-esteem and cautions against a premature causal interpretation of the work-competence/self-esteem relationship.

Gribbons, W. D., Halperin, S., and Lohnes, P. R. Application of stochastic models in research on career development. Journal of Counseling Psychology, 1966, 13, 403-408.

Respondents:

Number: 110
Sex: male and female
Age: 8th grade
Residence: eastern Massachusetts
Date Data Gathered: fall, 1958
Selection: all eighth graders attending a school in eastern Massachusetts

Objective: To test Super's notions about the content and growth of vocational maturity.

Methodology: Four extensively structured interviews were conducted with 110 subjects at two-year intervals extending over a period of seven years. Interviewing began while the subjects were in the 8th grade; continued in the 10th, 12th, two years after high school; and ended in 1967 when they were college seniors. The five response protocols were evaluated by the investigators and from this they developed a series of quantitative scales. Markov chain models were used to analyze coping behaviors, educational aspirations and Roe's level of occupational aspirations. Self-concept imagery was obtained from the interviews. The primary paradigm in the study was the use of multivariate analysis of variance and discriminant functions to display the predictive validities of the Readiness for Vocational Planning.

Results and Conclusions: A Markov chain analysis of traditional coping behaviors indicated 64% of the subjects were rated as unhealthy. (Stationary $H:0 \chi^2_4 = 2.7, p \sim .61, p < .001$) The researchers felt this matrix says to counselors that the appearance of good mental condition with respect to vocational planning at any one point in adolescence is not a guarantee of the continuation of the state although the odds favor its continuance. Markov analyses of educational aspirations revealed 41% of 8th grade girls aspired to college education (Stationary $H:0 \chi^2_4 = 2.6, p \sim .62, p < .001$) and 57% of boys aspired to go to college (Stationary $H:0 \chi^2_4 = 4.0, p \sim .41, p < .001$). The researchers conclude that stochastic models have great promise in the analyses of process variables collected in longitudinal studies of human development. Stochastic process models may become an important supplement to trait statistical models in the framing and testing of theories of human development and in the presentation of research findings to counselors.

Gross, E. A sociological approach to the analysis of preparation for work life. Personnel and Guidance Journal, 1967, 45, 416-423.

In this paper the author describes preparation for life's work as involving the following: (1) preparation for life in an organization, involving authority, security, quests, impersonality, conflict, mobility, and demotion; (2) preparation for a set of role relationships; (3) preparation for a level of consumption, involving a certain style of life; and (4) preparation for an occupational career, involving changes in the future of jobs, and different types of jobs depending on the position in the life cycle. In his conclusions, he suggests a broadening of the concept of "vocation," and a change in approach to the analysis of the decision-making process from traditional stochastic analyses to "disjointed incrementalism," or making decisions for short time-periods only, and with strict limitation on available data and resources.

Gross, E. Counselors under fire: Youth opportunity centers.
Personnel and Guidance Journal, 1969, 47, 404-409.

The author presents a candid discussion of five assumptions of client-centered therapy which he believes to be untenable in settings similar to the Youth Opportunity Centers. The assumptions found untenable are: (1) client comes voluntarily; (2) client wants help; (3) client accepts counselor's authority; (4) client comes as individual; and (5) counselor accepts client. He concludes that because of bureaucratic conditions of government programs, because of poverty and demoralization of clients, and because of race and other differences, counseling (except of a highly directive sort) is not possible. He recommends a group approach which takes into account the organized nature of the client population. He feels counselors can be of valuable assistance to organized self-help movements.

Gysbers, N. C., Johnston, J. A., and Gust, T. Characteristics of homemaker- and career-oriented women. Journal of Counseling Psychology, 1968, 15, 541-546.

Respondents:

Number: 110

Sex: female

Age: college-age; again three to nine years later

Residence. University of Missouri students

Date Data Gathered: 1958-1964; again in 1967

Selection: students tested at the University of Missouri whose scores met the criteria for homemaker- or career-oriented

Objectives: To determine what demographic and attitudinal differences exist between women who are identified as homemaker- and career-oriented.

Methodology: Homemaker- and career-oriented women were identified by their scores on the Strong Vocational Interest Blank for Women. They were recontacted in 1967 for a second administration of this questionnaire to identify shifts in career patterns.

Results and Conclusions: Stable career women were more apt to be single ($p < .01$), have pursued more education ($p < .05$), and come from families where both parents had more education ($p < .01$) than was true for those from the stable homemaker group. Twenty-three attitudinal differences were also reported based on the opinion of these women. For example, career-oriented women regarded personal achievement as more important than regard for others ($p < .01$), while the homemaker-oriented women were more inclined to describe themselves as patient when personal needs conflicted with the needs of others ($p < .01$).

Hager, P. C., and Elton, C. F. The vocational interests of black males. Journal of Vocational Behavior, 1971, 1, 153-158.

Respondents:

Number: 190 (150 whites, 40 blacks)

Sex: male

Grade: entering college freshman

Location: Kentucky

Socioeconomic Status: low

Date Data Gathered: estimated to be in 1970

Selection: a sample of entering college freshman males who had completed the Strong Vocational Interested Blank (SVIB) during their freshman testing program

Objective: To determine if blacks, more than whites, will show interest in the social service occupations, e.g., personnel director and public administrator.

Methodology: The SVIB, revised in 1969, was used to evaluate the vocational interests of the sample.

Results and Conclusions: The results indicated that white males differ from black males in terms of an interest in physical science versus an interest in social science (working with people) ($p < .001$). The author concluded by stating that race seems to be a better indication of a student's selection of an academic major or occupational interest area, more so than a student's socioeconomic status.

Hall, J. A. and Wiant, Jr., H. V. Does school desegregation change occupational goals of Negro males? Journal of Vocational Behavior, 1973, 3 (27), 175-179.

Respondents:

Number: 600

Sex: male

Grade: seniors in high school

Ethnic Background: black

Location: Texas

Date Data Gathered: 1969-1970

Selection: black senior males from all public high schools in Texas operating a 12th grade class in 1969-70 who had experienced from less than one to more than five years of desegregated education.

Objective: To determine if the degree and duration of school desegregation in Texas high schools had influenced the work values and occupational aspiration levels of 12th grade black males.

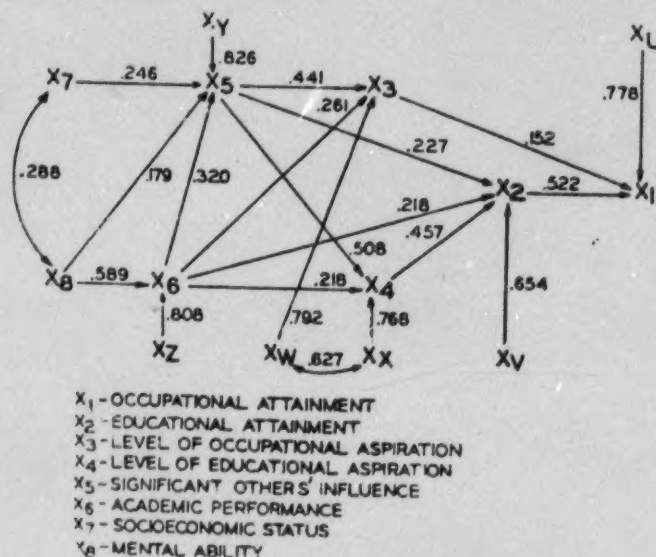
Methodology: Super's "Work Values Inventory" was used to assess a wide range of values which affect the motivation to work, and three questions were added to aid in the evaluation of occupational aspirations and expectations.

Results and Conclusions: The authors found that: (1) the only work-value variable significantly related to the number of years in a desegregated school was the Way of Life scale ($p < .05$), which is defined as being associated with the desire to obtain the type of work which allows one to live the kind of life and to be the kind of person he wishes; (2) students in senior classes with more whites scored significantly higher on the Surroundings scale ($p < .05$), indicating a positive effect of desegregation on the desire to work in a comfortable environment; and (3) as the proportion of whites increased, the desire to make beautiful things, as measured by the Esthetics scale, significantly diminished ($p < .05$). However, the authors warn that the above results could be expected by chance alone when computing the 45 analyses of variance. A significant relationship between occupational aspiration levels and size of high school also was reported (significance level not given). The authors concluded that "if desegregation does influence work-value orientations and occupational aspiration levels, its duration and extent in Texas schools have not been sufficient to produce much change as measured by this investigation."

Haller, A. O. and Portes, A. Status attainment processes.
Sociology of Education, 1973, 46 (1), 51-91.

This paper summarizes recent trends in stratification research and compares the Blau-Duncan and Wisconsin models of status attainment. Both models are similar in the causal ordering of variables and yield similar empirical estimates of paths of influence, although based on different samples. In both studies educational and occupational attainment show the strongest relationship and parental status and early occupation display the weakest. The Wisconsin model differs in its inclusion of social psychological dynamics mediating interpersonal influences on individual attainment, specifically aspiration and the influence of significant others.

The Wisconsin model was developed using a data set collected on a random sample of one-third of Wisconsin's male high school seniors in 1957 who were subsequently reinterviewed in 1964-65. It indicates that most of the effect of family's position on educational and occupational attainments is due to its impact on aspiration and the encouragement of significant others. Once these variables are controlled, family's position has no direct effect on status attainment. This model is shown below:



The need for further research was also discussed. Recommendations included: refinement of status system parameters, more experimental studies on significant others, identification of critical stages and the changes in significant others at these stages, extending status attainment models so they are applicable to women, and further exploration of changes in the levels of status transmission.

Hansen, W. L. Total and private rates of return to investment in schooling. Journal of Political Economy, 1963, 71, 128-140.

This article presents estimates of internal rates of return based on both total and private resource costs for various amounts of schooling from elementary school through college. The basic source of income data is the 1950 Census of Population which provides distributions of incomes for males by age and level of schooling in 1949. The estimates of per student total resource cost, school costs paid by society, and school-related expenditures incurred by individuals were derived from Schultz's work. Lifetime cost-income streams were constructed for each level of schooling with the use of the appropriate age-income profiles and the age-cost estimates. It was found that the marginal rates of return rise with more schooling up to the completion of the eighth grade and then fall off to the completion of college.

Harren, V. A. The vocational decision-making process among college males. Journal of Counseling Psychology, 1966, 13 (3), 271-277.

Respondents:

Number: 86
Sex: male
Age: college students
Residence: (not stated)
Date Data Gathered: (not stated)
Selection: stratified sample of liberal arts students

Objectives: To test these propositions of Tiedeman and O'Hara: (1) that the Exploration, Crystallization, Choice and Clarification stages exist; (2) that although they are analytically distinct, they are relatively inseparable; and (3) that an individual may be at different stages with regard to different vocationally-relevant decisions at the same time.

Methodology: A vocational decision-making Q-sort was developed and used. The Edwards Social Desirability Scale and a basic data sheet were also employed.

Results and Conclusions: Most of the students tended to treat choice of major and choice of occupation as a single problem. The existence of the stages was verified and groups of students could be said to be in one or another of the four stages on the basis of their factor loadings.

Hawley, P. Perceptions of male models of femininity related to career choice. Journal of Counseling Psychology, 1972, 19 (4), 308-313.

Respondents:

Number: 136

Sex: female

Age: 26

Residence: San Diego State College

Date Data Gathered: (not stated)

Selection: Women students were selected at random from these groups: teaching, math-science, and counseling

Objectives: To investigate the relationship between women's perceptions of male views and women's careers.

Methodology: The questionnaires had 35 items which began "Significant men in my life think women..." Respondents identified significant men for themselves. The following factors were probed: woman as partner, ingenue, homemaker, competitor, and knower. Background information was gathered, including marital status, age, and education.

Results and Conclusions: There were differences between those preparing for traditionally feminine careers (e.g., teaching) and those preparing for nontraditional careers (e.g., math-science majors). Counselors scored more like the math-science group than the teacher group. Largest contributor to group differences was found to be woman as homemaker ($p < .001$) and woman as competitor ($p < .001$). Woman as knower ($p < .002$) and as partner ($p < .004$) were the next-best discriminators, but ingenue was found to be a negative discriminator. Math-science women thought that significant men in their lives believed women could perform in business and professional areas without jeopardizing their marriages, families, or femininity. They indicated their men feel women should be free to compete with men in all areas. The teacher group supported most strongly the division of labor based upon sex and thought men were more qualified in financial matters and that women were more qualified to make decisions about home and children. However, women planning to enter male-dominated careers were more concerned with male support and only 10% said they would pursue present goals over the objections of significant men in their lives.

Haystead, J. Social structure, awareness contexts, and processes of choice. Sociological Review, 1971, 19 (1), 79-94.

This paper discusses the process of job choice. Choice is approached in terms of combinations of awareness of job choice, knowledge of job requirements, knowledge of job characteristics, and knowledge of characteristics of the individual. It is suggested that variations in alternatives available, knowledge about these alternatives, the degree of previous commitment to a particular alternative or range of alternatives, and the subject's awareness of this will influence the way in which a choice is made. Also important is the age at which a choice must be made and whether the individual has developed decision-making procedures.

The author recommends that the decision-making procedures actually used by various groups be examined rather than constructing models of choice.

Hershenson, D. B. Techniques for assisting life-stage vocational development. Personnel and Guidance Journal, 1969, 47(8), 776-780.

The author suggests techniques of assistance which relate to his earlier formation of five vocational development life stages and the transition between these stages.

Stages	Transitional Procedure	Assistance Techniques	
		Facilitation	Remediation
Social amniotic			
↓	Determining program (set)	Life style analysis	Environmental manipulation; psychotherapy
Self-differentiation			
↓	Information input	Guidance	Skill training
Competence			
↓	Information processing	[Content: Client-centered Process: Training in decision-making	
Independence			
↓	Information utilization	[Intrapsychic: Existential Situational: Job matching	
Commitment			

Hilton, T. L. Career decision making. Journal of Counseling Psychology, 1962, 9, 291-298.

Five decision-making models are examined; the attribute-matching model, the need-reduction model, the probable gain model, the social structure model and the complex information processing model. The author presents a model of decision making drawing from the complex information processing approach and incorporating Festinger's theory of cognitive dissonance. He proposes that the reduction of dissonance among a person's beliefs about himself and his environment is the major motivation of career decision making.

Hilton, T. L. A study of intellectual growth and vocational development.
Final report. Princeton, New Jersey: Educational Testing Service,
March 1971.

Respondents:

Number: 45,901
Sex: male and female
Age: fifth to twelfth
Residence: nationwide
Date Data Gathered: 1961, 1963, 1965, 1969
Selection: stratified sample of 27 high schools and their
feeder schools in 27 communities

Objectives: The report summarizes a longitudinal study of intellectual growth and vocational development of students from fifth to twelfth grades. Student development over time was studied as an interaction between school, community, and family, with each factor influencing career choice.

Methodology: In 1961, different students in grades 5, 7, 9, and 11 were tested, and then were tested every two years until they graduated. The focus was on academic growth as measured by standardized tests, supplemented with information collected with questionnaires on interests and educational and vocational plans. Follow-up was also done of graduates.

Results and Conclusions: The research was done through a series of small, closely related studies. Results are reported in the areas of high school curriculum; educational achievement; dropouts; and the influence of school, community, race, and culture on educational achievement.

Hind, R. R. and Wirth, T. E. The effect of university experience on occupational choice among undergraduates. Sociology of Education, 1969, 42 (1), 50-70.

Respondents:

Number: 920 (estimated)

Sex: male

Grade: college students

Date Data Gathered: estimated to be between 1960 and 1967

Selection: male students who enrolled in a highly selective university (name of institution not stated) in September, 1961, and made continuous and regular progress toward a Bachelor's degree through their last regular term in 1965. (The authors avoided using graduation as a criteria because of the difficulty of completing some majors within a four-year period.)

Objective: To determine if undergraduates enrolled in a selective university change their occupational aspirations between matriculation and graduation, moving away from those fields which are primarily academic in content (e.g., college professor, research scientist, high-level professional) toward the less academically demanding occupations. In other words, since a selective university is academically highly demanding, many students are expected to move away from occupational goals which have high academic prerequisites and to lower their occupational aspirations.

Methodology: The data collected began with responses on the application for admissions form the students completed during high school, and concluded with a survey questionnaire administered nearly two years after the "normal" graduation date. Data were also obtained by indicating the choice of academic major at the time of application, entrance, and during each quarter of enrollment. In addition, cumulative grade point averages (GPAs) for each quarter were also obtained. Also, seven occupational categories were developed to aid in the present analysis.

Results and Conclusions: The authors concluded that their hypothesis that a selective institution will drive students away from academically demanding careers was not upheld. Instead a more refined hypothesis was largely supported by the data, indicating that even students of high ability are driven away from "academic" careers and the "traditional professions" if they receive low grades. Also, in the university studied, a high rate of occupational shift (more than 63%) was found over the undergraduate years, especially from engineering to business-related careers.

Hodge, R. W., Siegel, P. M., and Rossi, P. H. Occupational prestige in the United States, 1925-63. American Journal of Sociology, 1964, 70, 286-302.

Respondents:

Number: 651 in 1963
Sex: male and female
Age: adults and youth
Residence: national sample
Date Data Gathered: 1947 and 1963
Selection: quota sampling methods used in 1947 study were repeated in 1963.

Objectives: A replication was done in 1963 of a 1947 study of occupational prestige to determine what changes there had been in occupational rating during those sixteen years. Several earlier studies are discussed providing a rough time series going back to 1924.

Methodology: Respondents were asked to judge ninety job titles as having excellent, good, average, somewhat below average, or poor standing. Numerical values were assigned and responses were averaged to yield the NORC prestige score.

Results and Conclusions: There was a correlation of .99 between prestige scores derived from the 1947 study and the 1963 replication, indicating that very few changes in occupational prestige occurred in this period. The results of four earlier studies are cited which show that there have been no substantial changes in occupational prestige in the United States since 1925. The correlations between the studies were .934 to .990. There were some small, but systematic changes in the prestige of some occupations. Scientific occupations were increasing in prestige, culturally oriented occupations were falling, and artisans were increasing slightly.

Holland, J. L. Explorations of a theory of vocational choice:
VI. A longitudinal study using a sample of typical college
students. Journal of Applied Psychology Monograph Supplement,
1968, 52 (1), 1-37.

Respondents:

Number: 12,300
Sex: male and female
Age: 18
Residence: 22 United States colleges
Date Data Gathered: 1964, 1965
Selection: (not stated)

Objectives: The purpose of the study was to define the relationship between vocational preference [measured by Holland's Vocational Preference Inventory (VPI)] and personality type as judged from performances. The relationship between performance on these measures and stability of vocational preference, personal satisfaction and type of college environment was also of interest.

Methodology: Preconscious Activity Scale (Holland and Baird), competency checklist, interpersonal competency scale, Dogmatism Scale (Rokeach, 1956), Student Orientation Survey, Form C (Farber and Goodstein, 1964), and other self-descriptive information.

Results and Conclusions: Results suggested: (1) personality type as defined above and vocational preference (VPI score) are significantly correlated; (2) among VPI types, "intellectual" students express the most satisfaction with college, while "realistic", mechanically-oriented students appear least satisfied ($p < .05$); (3) VPI predicts student vocational choice at a better than chance level but is only half as effective as asking the student himself; (4) individual student vocational preference seems to remain most stable at colleges where most of the students have the same VPI type (homogeneous environment) ($p < .05$ for 5 colleges in the 22-college sample); (5) diversity of VPI types is associated with more change of vocational preference; (6) students express more satisfaction with their college if it is an institution that contains a diverse array of VPI types than if it is homogeneous.

Horner, J. T., Buterbaugh, J. G., and Carefoot, J. J. Factors relating to occupational and educational decision-making of rural youth. Research summary. Final report. College of Agriculture: University of Nebraska, April 1967.

Objective: To review sociological, economic, educational, and psychological studies which contain factors influencing occupational and educational decision-making of rural youth. Included were studies of aspirations, migration and mobility, socioeconomic status, occupational choice, cost and benefit of education, educational and occupational choice attainment, and the pursuit of higher education.

Results and Conclusions: The publication dates of the studies surveyed ranged from the late 30's to the mid 60's with the majority being reported in the 50's and 60's. The conclusions reached by the authors from the literature were: (1) Fewer capable rural males attend college than urban males; (2) Economic factors do not appear to be major decision-making variables in terms of occupational choice. However, the occupation of the father, attitudes of the parents toward education, and education of the parents are influential factors; (3) Rural-urban migration is greater near large cities than in remote rural areas; (4) Farming as an occupation is transmitted from father to son in larger proportions than other occupations. However, fewer youth are entering farming than in the past; (5) On-the-job experience is an important factor influencing decision making; (6) College attendance is correlated to population concentration and proximity to colleges; (7) Compared to urban youth, rural students are more concerned with learning a specific vocation and less concerned with achieving high grades. (8) Religion appears to be an important factor influencing decision making; (9) Psychological factors differentiating rural from urban youth include being more self-reliant, having a greater sense of personal worth, and possessing better social skills.

Houstras, P. T., Williams, C. M., and Williams, J. D. Manifest anxiety and vocational preference among male graduate students. Psychological Reports, 1972, 30, 886.

Respondents:

Number: 145
Sex: male
Age: 22 through 26
Residence: University of North Dakota
Date Data Gathered: 1972
Selection: random selection

Objectives: The authors proposed to investigate the relationship of Holland's Vocational Preference Inventory (VPI) scales to anxiety level as measured by the Manifest Anxiety Scale (MAS) (Heineman, 1953). It was predicted that persons who score high on the Intellectual scale of the VPI would score lower on the MAS than would persons who receive high VPI scores in the Conventional, Artistic, and Realistic categories. This prediction was based on an assumption that intellectual persons are more "internal" regarding locus of control than are the other types.

Methodology: Questionnaires

Results and Conclusions: No significant differences between manifest anxiety levels were indicated across the different types. The hypothesis was rejected.

Hughes, Jr., H. M. Vocational choice, level, and consistency: An investigation of Holland's theory on an employed sample. Journal of Vocational Behavior, 1972, 2 (4), 377-388.

Respondents:

Number: 400
Sex: male
Ages: 25 through 35
Residence: New York state
Date Data Gathered: 1972
Selection: random selection

Objectives: Four hypotheses were suggested by Holland's vocational typology: (1) people employed in a given job have the personality orientation that Holland's theory associates with their particular vocational category; (2) the job level a person works at can be predicted from the sum of his intelligence score and self-evaluation; (3) people rate themselves high on those personality characteristics which Holland's theory associates with the work they do; (4) people whose personality patterns are consistent with their vocational orientation as assessed by Holland's scheme will change their field of work less often than will persons with "inconsistent" personality-vocational patterns; (5) people with "consistent" patterns will express more job satisfaction than will people with "inconsistent" patterns.

Methodology: Measures included the Strong Vocational Interest Blank (SVIB), Vocational Preference Inventory (VPI), and Cattell 16 Personality Factor questionnaire.

Results and Conclusions: Results of the data analysis suggested: (1) There was a low level of support for the first hypothesis. VPI high score was associated with actual employment for 42% of the sample. The predictive power of the SVIB and 16 Personality Factor questionnaire were substantially less. For only four people out of the entire 400 subjects did all three tests agree in predicting the actual employment category. (2) For 55% of the sample, the individual's estimate of his own ability plus his score on a verbal intelligence test was associated with his actual occupational level. This outcome was taken as support for Holland's level hypothesis. (3) This hypothesis was not supported. Only 6% of the sample rated themselves as having the personality characteristics which Holland's theory associates with the work they do. (4) No significant relationship was found between frequency of job change and "inconsistency" or "consistency" of personality-vocational pattern. (5) No significant relationship was found between job-satisfaction level and personality-vocational consistency.

Hunt, R. A. Self and other semantic concepts in relation to choice of a vocation. Journal of Applied Psychology, 1967, 51 (3), 242-246.

Respondents:

Number: 258
Sex: male
Age: adult
Residence: United States
Date Data Gathered: 1966
Selection: (not stated)

Objectives: The question of interest is whether self-concepts influence vocational decisions. Two hypotheses were stated: (1) people of a given vocational group will be more likely to see themselves as being like other members of their own group than like members of other, unrelated occupations; (2) it is possible to detect which of the four groups (engineers, business managers, high school science teachers, or ministers) a person belongs to from the self-descriptive words he chooses to apply to himself and to the other groups.

Methodology: Descriptions of self and others were elicited by the use of 25 semantic differential scales. Multiple discriminant analysis of normalized D scores produced three significant functions (each $p < .001$) between the professional groups.

Results and Conclusions: Both hypotheses were accepted. People in each group tended to prefer the same descriptive terms for themselves, their work roles, and members of their vocational group. The multiple discriminant analysis suggested that each group had its own distinctive pattern of responses to the self, other, and vocational concepts ($p < .01$). In a cross-validation group of male undergraduates, semantic differential profiles correctly classified 70 of 139 students according to Kuder Occupational Interest Inventory (OII) scores and 83 of 125 of the students according to first choice of vocation. These results are interpreted as supporting Super's self-concept implementation theory. However, because of the correlational method of analysis, it is not possible to ascertain whether the vocational attitude profiles (self-concepts) are the cause (as Super suggests) or the consequence of occupational specialization.

Hurley, R. B. Race, fatherlessness, and vocational development: An exploration of relationships between membership in nuclear or fatherless families and level of occupational aspiration and expectation, self-esteem, extrinsic work values and person-orientation among a sample of black and white adolescent boys. (Doctoral dissertation, New York University, 1972). (University Microfilms No. 73-8169)

Respondents:

Number: 182

Sex: male

Grade: 10th through 12th

Ethnic Background: blacks and whites

Residence: New York state

Date Data Gathered: during the 1968-69 academic year

Selection: students in Albany, Elmira, and Patchogue were selected from a group made available by the school administrators. Students were surveyed outside of their school building on their own time, and were each paid five dollars for their participation. Students in New York City were presented by their school administrators as an intact, available group and they were surveyed in their schools, during school time, and were not compensated.

Objectives: To determine the relationship between membership in a nuclear or a fatherless family for black and white high school males and (a) the level of occupational aspiration, (b) the disparity between level of occupational aspiration and occupational expectation, (c) the level of self-esteem, (d) the extrinsic work values, and (e) the aspiration to and expectation of an occupation that is person or nonperson oriented.

Methodology: The principal instruments employed were: (a) the New York University Study of Occupational Choice among High School Students (a questionnaire originally designed to elicit social, aspirational, and expectational data), (b) Osgood's Semantic Differential Test (designed for measuring the connotative meaning of self), (c) Hamburger's Revised Occupational Scale (measures socioeconomic status based on a knowledge of the occupation of the head of the family), (d) Super's Work Values Inventory (assesses 15 intrinsic and extrinsic work values of both sexes, of all ages, and including all educational levels), (e) the SRA Non-Verbal Form (measures general intelligence), and (f) the Dictionary of Occupational Titles (used to dichotomize a student's aspirations and expectations into person or non-person oriented).

Results and Conclusions: The results indicated that the only significant association observed was between race and self-esteem ($p < .01$) and between place of urban residence and self-esteem ($p < .05$). After utilizing a step-wise regression analysis it was suggested that lower self-esteem scores among black students can be attributed to their race and not to their place of urban residence or to the structure of their families.

Results of the study were interpreted by the author as indicating that society in general, and peer groups in particular, may provide compensation for father absence, at least with respect to the vocational development variables investigated. It was concluded that insufficient evidence exists to support the view that deleterious effects upon vocational development of living in a fatherless family occur.

C-126

Jepsen, D. A., and Dilley, J. S. Vocational decision-making models: A review and comparative analysis. Review of Educational Research, 1974, 44(3), 331-349.

The article identifies the elements of a decision-making model, summarizes several of the major models, and compares these models.

The authors unify the language used by various proponents in order to compare them. A decision-making conceptual framework assumes the presence of a decision-maker, a decision situation, and relevant information. Alternative actions and their outcomes are considered, and each outcome has a probability of occurrence and a value to the decision-maker. The information is arranged according to a strategy so the decision-maker can make a commitment to an action. Risk-taking also enters into the process.

The following vocational decision-making models are summarized:

Descriptive Models

- Tiedeman-O'Hara---involves stages of integration and differentiation.
- Hilton---involves beliefs and expectations about self and the world, a plan of sequential action, and cognitive dissonance.
- Vroom---expresses the relationship among valence (preferences), expectancy, and force algebraically.
- Hsu---draws on Vroom; decision-maker is represented as a system; occupational choice is the output.
- Fletcher---assumes that decision processes are not wholly rational and that commitment is largely a function of timing; the career chosen is that one for which the career concept's affect charge is the highest at the time of decision.

Prescriptive Models

- Katz---starts by identifying values rather than alternatives. The values of possible decisions can then be predicted.
- Gelatt---Here the decision-making process as well as the outcome is evaluated. Emphasizes how input is to be handled so that objective data can influence subjective data. Includes predictive system, value system, and decision criterion.
- Kaldor-Zytowski---Based on economic theory. The occupational choice process is assumed to approximate maximizing behavior and is described in terms of inputs and outputs.

The models are compared using the concepts of awareness of decision situation, alternative actions, outcomes, subjective probability, value, and commitment. Assumptions are also examined in regard to the amount of information available, conditions of risk or uncertainty, decision strategy, level of precision in combining information, and about outcomes. The models are also reviewed in terms of a framework provided by Braybrooke and Lindblom which uses continua between long- and short-range changes and decisions based on minimal information versus those based on considerable information and understanding.

The authors conclude that the various models are similar in many ways, but also have substantial differences. They feel that there is not enough research evidence to judge which are the better explainers or predictors, and that the models appear to be more complementary than competitive.

Johnston, J. and Bachman, J. G. The transition from high school to work: The work attitudes and early occupational experiences of young men. A special report from the Youth in Transition Project. Ann Arbor: Institute for Social Research, University of Michigan, 1973.

Respondents:

Number: 1,566

Sex: male

Age: 10th, 11th, and 12th grade and one year after high school

Residence: nationwide

Date Data Gathered: 1966, 1968, 1969, 1970

Selection: 87 public high schools

Objectives: This is one of several reports based on the Youth in Transition project, a longitudinal study of high school boys. The focus is on the success of students who entered the job market and how this is related to family background, intelligence, personality, attitudes, experiences, and environment. It also deals with work attitudes, the effect of part-time job experiences during high school, and the level of job satisfaction.

Methodology: In the fall of 1966 a nationwide sample of 2,213 tenth grade boys was interviewed and tested. Additional data was collected from the same group at the end of the eleventh grade (1968), the end of the twelfth grade (1969), and one year beyond high school (1970). The number who responded at all four points in time was 1,566. The number who entered the labor force after high school was 539.

Results and Conclusions: High levels of unemployment (20%) for recent high school graduates were associated with low scores in academic ability and low socioeconomic level. Dropouts had high unemployment rates but when family background and intelligence were controlled, much of the effect of dropping out disappeared. There was also another group with a high level of unemployment (19%). This was a group of respondents from high socioeconomic status families who planned to go to college but for some reason did not. The study also found that those who worked during high school had less unemployment (5%) than those who did not (19% unemployment). The status of attained jobs was related to intelligence, socioeconomic level, and city size. The amount of variance attributed to intelligence was 5.4%, to socioeconomic level was 2.4%, and to urbanicity was 3.5%.

Kahl, J. A. Educational and occupational aspirations of "common man" boys. Harvard Educational Review, 1953, 23, 186-203.

Respondents:

Number: 24

Sex: male

Grade: high school

Location: Boston, Massachusetts

Socio-economic Background: low

Date Data Gathered: estimated to be in 1951

Selection: two groups of high school males, one enrolled in college preparatory courses who had marks in the top half of their classes and planned to go to college, the second group not enrolled in college preparatory courses and not planning to go to college. All students possessed intelligence scores in the top three deciles of their school, and their fathers' occupations were classified as "petty" white collar, skilled, or semi-skilled workers. Also, each of the students was drawn from a larger study comprised of 3,971 high school males.

Objective: To explore the social influences which help to account for differences in motivation to go to college among high school boys of similar background with high intelligence levels.

Methodology: Two interviews were conducted, one at school with the boys and one at home with the parents which focused on attitudes toward school and work.

Results and Conclusions: The findings of a previous study containing 3,971 male students were reviewed. These findings indicated that most boys with high intelligence from high status homes planned a college career, whereas most boys with either low intelligence or from low status homes did not aspire to higher education ($p < .02$). However, the study did not speculate what influenced some in the lower middle socioeconomic status group to aspire to go to college and others to choose not to do so.

The present study found that parental pressures were highly associated with college aspiration differences of those in the lower middle socioeconomic status group with high intelligence ($p < .02$). Through case studies of these students, the author concluded the following: (1) Although there was a general way of life identifying the "common man" class, some members were satisfied with their roles and others were not; (2) Parents who were discontented trained their sons to take school seriously and use education as the means to climb into the middle class; (3) Only sons who internalized such values saw reasons for good school performance and college aspirations.

Kaldor, D. R. and Zytowski, D. G. A maximizing model of occupational decision-making. Personnel and Guidance Journal, 1969, 47 (8), 781-788.

The paper presents a theory of occupational choice based on economic constructs. It asserts that the determinants of occupational choice are: (1) the chooser's occupational utility functions (preference system); (2) the resources or inputs at the disposal of the individual; and (3) the anticipated consequences of employing given resources in various occupations with differing potential for gratification. Choices involve maximizing net gain.

Kamens, D. H. The college "charter" and college size: Effects on occupational choice and college attrition. Sociology of Education, 1971, 44 (3), 270-296.

Respondents:

Number: 1,165

Sex: male and female

Grade: college students

Residence: 99 colleges and universities in various parts of the U.S.

Date Data Gathered: between 1962 and 1966

Selection: Data were obtained for students who composed those freshmen respondents in 1962-1963 who returned follow-up questionnaires sent to them in the spring of 1966 when they were seniors.

Objectives: To determine if large colleges produce more continuity in status sequence, e.g., attending a prestigious college leads to obtaining or selecting a prestigious vocation. Therefore, large colleges may have a positive effect on the number of students aspiring to high-status occupational roles, despite the fact that in larger colleges students have fewer contacts with faculty members outside of the classroom. Second, the author sought to ascertain whether larger colleges are likely to gain more control than smaller ones over students' organizational commitments. In other words, if students perceive that the college can provide directly an important "apprenticeship" for valued occupational roles, they would be more likely to feel dependent on the college for realizing desired occupational status. Thus, larger colleges should have lower rates of dropout than smaller colleges.

Methodology: Data on dropouts and ability were collected from the college registrars in the spring of 1966. Dropouts were defined as those who left school or transferred to another college between 1962 and 1966. It was not assumed that they had ended their educational careers. Data on student ability included cumulative grade averages for high school and college entrance scores on a variety of tests. Students also completed a questionnaire regarding occupational plans, and the NORC scale of occupational choice was completed both at the time they entered college and four years later, when most were seniors. College size for each of 99 schools was determined based on the number of undergraduates enrolled.

Results and Conclusions: The finding indicated that the two kinds of effects of college size predicted were interrelated. First, larger colleges have distinctive effects on students' occupational decisions because of the number and diversity of specialized, high-status occupational roles to which students aspire. Second, larger schools have lower dropout rates than smaller schools ($p < .01$). One qualification about the data must be made. The results suggest that size has different effects for dropout rates among males and females. Only the very largest colleges (10,000+) appear to lower the female dropout rate. For men, some of the data suggest that the relationship between college size and dropout rate may be curvilinear. Finally, the author interpreted that larger schools have a greater impact on

students' occupational commitments than smaller schools, and hence show lower dropout rates, because of their superior status-allocating capacity.

Kandel, D. B. and Lesser, G. S. Parental and peer influences on adolescent educational plans. American Sociological Review, 1969, 34 (2), 213-233.

Respondents:

Number: 2,327

Sex: male and female and their mothers

Age: high school students

Residence: eastern United States

Date Data Gathered: 1965

Selection: all students in three high schools

Objectives: The study investigated the agreement on educational goals between adolescents and their mother and between adolescents and their best school-friend. It also explored the influence of social factors such as class membership on agreement on educational goals within dyads and the influence of patterns of social interaction within dyads.

Methodology: Students were given questionnaires on educational plans and were also asked to name their three closest same-sex friends in school. Their mothers were mailed parallel questionnaires and 60% of them responded. To investigate the patterns of social interaction, students were asked questions such as who did they talk to about their educational plans and how close they felt their opinions were to those of their parents. Mothers were asked how strongly they had encouraged their child. The degree of friendship between students was analyzed on the basis of whether the choice was reciprocated, the frequency of contacts, and if it was a "best" friend.

Results and Conclusions: The data indicated that parents are more influential than peers in regard to future life goals. The study found that concordance on educational goals is higher with the mother than with best school-friend ($\text{tau-beta} = .504$ and $.389$, $p < .001$) and that it is not explained by the common social class which adolescents share with parents and friends. While agreement with a friend increased with greater intimacy, agreement with mother remained at the same level, irrespective of the adolescent's closeness to his parents.

Katz, M. A model of guidance for career decision-making. Vocational Guidance Quarterly, 1966, 15, 2-10.

The author outlines a model of guidance for career decision-making which combines three systems of data: a value system, an information system, and a prediction system. First the student explores a range of values and makes his own values explicit. Information is then provided on various alternatives and some predictions made on the probability of certain outcomes.

Kim, K. H. The social context of occupational and educational mobility aspirations of Negro adolescents. (Doctoral dissertation, University of Maryland, 1968). (University Microfilms No. 69-8047)

Respondents:

Number: 346 (187 males, 159 females)

Sex: male and female

Age: 17 and 18 year olds

Grade: high school seniors

Location: Baltimore, Maryland

Ethnic Background: black

Socio-economic Status: low

Date Data Gathered: 1967

Selection: black students in high school classes with minimal white registration from six Baltimore high schools in which levels of aspiration for college education were determined by the number of 1966 graduates attending college full time in 1967. All of the nine academic high schools were ranked into three groups: high, middle, and low according to the proportion of the graduates who were attending higher educational institutions. The two high schools with the highest ratio of graduates attending college were selected from each group.

Objective: To formulate adequate theoretical constructs to explain mobility aspirations of Negro adolescents, and to empirically describe materials of Negro youth derived from an analysis of schedule data obtained through personal interviews.

Methodology: A questionnaire developed by the author was used in order to obtain general information regarding family background; to determine the student's college and occupational plans, and the parents' expectation of education and occupation for the students; to evaluate females' plans for career and/or marriage and, if marriage is chosen, to indicate expectations of husband's education and type of occupation; to investigate the educational and occupational plans of the best friend of the student; and to determine the student's perception of the social world for achieving desired goals as a member of the Negro minority in the United States. Ten percent of the sample was interviewed to obtain more in-depth and intense information than what could be obtained through the questionnaire. In addition, the parents occupational, educational, and economic background were evaluated through these interviews.

Results and Conclusions: The results indicated that the following relationships were significant: (1) educational aspirations of the male students and parents' educational backgrounds ($p < .01$), (2) parents' occupational aspirations for the male students and the parents' occupational backgrounds ($p < .01$), (3) students' occupational and educational aspirations and parents' aspirations for the students ($p < .01$), (4) male students' occupational aspirations and those of their friends ($p < .01$), and (5) students' educational

aspirations and those of their best friends ($p < .01$).

The following appear to be among the major descriptive and interpretative conclusions: (1) approximately 50 percent of the male and 83 percent of the female students aspire to semi-professional and professional occupations; (2) approximately 73 percent of the male and 81 percent of the female students aspire to some college education; (3) the parents' aspirations for the daughters are higher than for the sons; (4) students' mobility aspirations are higher than the parents' aspirations for the students; (5) approximately 72 percent of the students consider their families the most important sources of influence on their aspirations; (6) female students tend to be influenced by their families to a greater extent than male students, presumably due to the prevalence of the one-parent families among the low-class Negro families; (7) families are used more often as negative rather than positive reference groups, presumably due to the lack of "models of association"; (8) the majority of the Negro high school seniors share the American Dream regardless of their backgrounds; (9) more female than male students perceive their chances for achieving their aspirational goals as being good; and (10) Negro youth are aware that to seek mobility through education and the professions is realistic, while it is quite unrealistic to seek success through business outside the Negro community or through corporate hierarchies.

Kimball, R. L., Sedlacek, W. E., and Brooks, Jr., G. C. Black and white vocational interests on Holland's self-directed search. Report No. CSC-RR-6-71. College Park: University of Maryland, 1971.

Respondents:

Number: 286 (143 blacks, 143 nonblack)
Sex: male and female
Grade: entering college freshman
Location: University of Maryland
Date Data Gathered: summer, 1970
Selection: Holland's Self-Directed Search for Educational and Vocational Planning (SDS) was administered to 4,631 incoming freshmen, including 143 blacks. A random sample of 143 whites were drawn for the purposes of comparison.

Objective: To determine if the SDS was appropriate to use with blacks since it may steer them toward more "realistic" occupations not requiring a college education, e.g., bricklayer and elevator operator. In addition, the study was seeking to compare the pattern of vocational planning choices for black and white students and to determine student satisfaction with SDS results.

Methodology: Each member of both groups was administered the SDS for evaluation.

Results and Conclusions: Contrary to what was hypothesized, the findings indicated that Blacks and whites differed significantly in first choice summary codes on the SDS ($p < .05$), with blacks tending to choose "social" codes, while whites tended to select "realistic" and "investigative" codes. In addition, there were no significant differences in satisfaction with the SDS results as rated by both groups of students, and the conclusion was that SDS is equally appropriate for black and white students.

Kuvlesky, W. R. and Pelham, J. Occupational status orientations of rural youth: Structured annotations and evaluations of the research literature. Report No. DEPT-TR-66-3. College Station: Texas A & M University, September 1966.

Objectives: To prepare annotations for 47 empirical studies which focus on the occupational status orientations of rural youth.

Results and Conclusions: Each annotation described the location and dates of the study reported, general characteristics of the population studied, and how subjects were selected. The purposes of the studies were explained, the results reviewed, and a critical commentary provided. In addition, each annotation concentrated on occupational aspirations and expectations and anticipatory occupational goal deflection. The publication dates of the studies annotated ranged from 1929-1966, but the major concentration seemed to be during the late 50's and early 60's.

Lane, M. Explaining educational choice, Sociology, 1972, 6(2), 255-266.

Objective: To explain the weaknesses of past research between educational choice and social class. The research is criticized for two primary reasons: (1) it fails to specify a mechanism to connect social class with individual behaviors, and (2) the studies cannot account for deviance within a social class structure. Therefore, a thesis concentrating on the economic differences rather than on values is proposed.

Results and Conclusions: It was suggested that the real determinant of educational choice was to be found in economic differences which were only observable over an entire working career. Educational decisions must not be considered in isolation but in the context of an income career and through a person's perceptions of his career. Such economic differences cut across traditional occupational divisions and social class. Numerous human models may emerge during a lifetime that may affect an individual's educational choice. Therefore, it was suggested that others might have influence and that a person's economic perceptions of his employment career, whether fortunate or unfortunate, may also influence educational choice.

Lee, S. M. Job selection by college graduates. Personnel Journal, 1970, 49 (5), 392-395.

Respondents:

Number: 514

Sex: (not stated)

Age: college seniors

Residence: (not stated)

Date Data Gathered: 1969

Selection: all graduating seniors who used the placement office of Virginia Polytechnic Institute (VPI).

Objectives: To determine what happens in the job selection process of college graduates, what kind of efforts are made by organizations for college recruitment, what kind of salaries are offered to graduates with various educational backgrounds, and what criteria are considered in choosing a job by graduates.

Methodology: All graduating seniors who used the placement office were asked to complete a one-page questionnaire concerning employment plans, draft status, personal information, interview information, salary information, type of organization where the graduate selected the job, and the reasons for job selection. Three of the six VPI colleges were chosen for analyses; they were the College of Arts and Sciences, Business, and Engineering.

Results and Conclusions:

1. There is a strong demand for college graduates in general. Engineering graduates are more intensively sought than business and science graduates. The major employer type of college graduates is business organizations.
2. Engineering graduates receive the most invitations to visit organizations, take the most trips, and receive the most offers. Engineering graduates took 12.7 interviews, made 3.7 trips to organizations, and received 3.4 offers; while arts and sciences majors took 5.7 interviews, made 1.7 trips to organizations, received 2.2 invitations, and received 1.9 offers.
3. Business and industrial organizations pay substantially higher starting salaries than governmental agencies (\$832 per month for engineers in industry and \$755 per month in federal government). Engineering graduates commanded the highest starting salaries (\$808 per month for engineers; \$647 per month for arts and sciences majors).
4. College graduates generally consider the same factors to be of importance, regardless of educational background, in selecting the starting position. They are: appealing job, potential for advancement, and the kind of people they meet in the organization.

Leventhal, G. An exploratory investigation of the influence of sibling associations on occupational preferences. Raleigh: Center for Occupational Education, North Carolina State University, 1969.

Respondents:

Number: varied between 531 and 544

Sex: male

Age: $\bar{x}$ = 18.3 years

Grade: entering freshman college students

Residence: University of North Carolina, Chapel Hill

Date Data Gathered: fall, 1967

Selection: included all entering freshman males at the University of North Carolina with one brother or sister; excluded students with half-siblings or step-siblings.

Objective: To determine the relationships between birth order and sex of siblings, and occupational preferences. Holland's theory of vocational choice was used as a framework. The hypotheses were: (1) that students with an older sister would display greater preference for occupations of the realistic type (i.e., occupations which require manual skills; e.g., mechanic, electronic technician, tree surgeon, ranch hand) than students with an older brother; and (2) that first-born men would display greater preference for occupations of the intellectual type (i.e., occupations requiring the manipulation of ideas and symbols; e.g., research scientist, mathematician, writer of scientific articles) than second-born men.

Methodology: A questionnaire was employed in which students were asked to rate their likings for occupations representing each of Holland's six occupational types (i.e., realistic, intellectual, social, conventional, enterprising, and artistic).

Results and Conclusions: The findings were not significant and did not confirm either of the hypotheses. The author suggests that invalid assumptions in deriving predictions could account for the negative results.

Lo Cascio, R. Delayed and impaired vocational development: A neglected aspect of vocational development theory. Personnel and Guidance Journal, 1964, 42, 885-887.

In this paper, the author restates and clarifies Super's theory of vocational development and presents his ideas concerning continuous, delayed, and impaired vocational development in terms of theory. He develops the following hypotheses of developmental units and suggests their use as a criterion of career success. They are:

Continuous Developmental Unit:

1. The individual is faced with a vocational developmental task.
2. He brings to bear upon that task a vocationally relevant behavior repertoire.
3. Vocationally relevant learning occurs during, and as a result of, coping with the vocational developmental task.
4. The vocationally relevant learning is incorporated into the existing repertoire of behavior.

Delayed Developmental Unit:

1. The individual is faced with a vocational developmental task.
 - a. He does not bring to bear upon that task sufficient vocationally relevant behavior from his behavioral repertoire.
 - b. Vocationally relevant learning occurs as a result of his vocational experiences.
 - c. The vocationally relevant learning is incorporated into the existing repertoire of behavior.
2. The individual now brings to bear upon the vocational development task sufficient vocationally relevant behavior.
3. Vocational learning occurs during, and as a result of, coping with the vocational developmental task.
4. The vocationally relevant learning is incorporated into the existing repertoire of behavior.

Impaired Developmental Unit:

1. The individual is faced with a vocational developmental task.
 - a. He does not bring to bear upon that task sufficient vocationally relevant behavior from his repertoire of behavior.
 - b. Little vocationally relevant learning occurs as a result of his vocational experiences and his repertoire of vocational behavior remains relatively unmodified; if vocationally relevant learning does occur, it is of low order and is not incorporated into the behavioral repertoire.

Madaus, G. F. and O'Hara, R. P. Vocational interest patterns of high school boys: A multivariate approach. Journal of Counseling Psychology, 1967, 14(2), 106-112.

Respondents:

Number: 979

Sex: male

Age: high school (grades 9-12)

Residence: (not specified)--all boys were of relatively homogeneous middle-class backgrounds

Date Data Gathered: (not specified)

Selection: total population of high school; they were of upper 15% intelligence on national norms

Objectives: The authors try to determine the nature and extent of discrimination possible between groups of boys indicating a preference for nine different occupational groups.

The following multivariate null hypotheses were tested:

- HO₁ Significant differences do not exist between occupational groups on vocational interests with the effect of grades partialled out.
- HO₂ Significant differences do not exist between the four grade levels on vocational interests with the effects of occupational groups partialled out.

Methodology: The Kuder Preference Record-Vocational Form CH was administered and each subject was asked to state his occupational choice. The 979 boys chose 92 separate occupations; the occupations were then classified into 9 groups. These were: science, business medicine, priesthood, law, nonprofessional, social science humanities, military, and engineering. The 10 scales of the Kuder were tried simultaneously as dependent variables. Data were analyzed using multivariate two-way (9 x 4, Occupational Group x Grade in High School) analysis of variance.

Results and Conclusions: An F ratio of 9.76 for differences between the nine occupational groups, with the effects of grade removed, was significant beyond the .001 level of confidence. the multivariate null hypothesis was rejected. The F of 2.73 for the differences among the four grades of high school is also significant beyond the .001 level of confidence resulting in rejection of the second null hypothesis.

Malnig, L. R. Fear of parental competition: A factor in vocational choice. Personnel and Guidance Journal, 1967, 46 (2A), 235-239.

Methodology: Case history

Results and Conclusions: The author argues that a college student can be torn between his desire to meet his parent's expectation that he will rise to a higher socioeconomic level and his fear of parental competition. This conflict is illustrated in case histories. It is suggested that counselors should attempt to make use of peer influence effects.

Mansfield, R. Self-esteem, self-perceived abilities, and vocational choice. Journal of Vocational Behavior, 1973, 3, 431-433.

Respondents:

Number: 206
Sex: (not stated)
Age: 22
Residence: Oxford University, G. B.
Date Data Gathered: (not stated)
Selection: random selection

Objectives: Hypotheses tested concerned the relationship of students' self-esteem (representing Super's self-concept) to their estimates of their ability to succeed in the vocations they had chosen.

Methodology: A questionnaire developed by the author, together with performances on a 15-item, 5-point self-confidence rating scale (Rosenberg, 1957).

Results and Conclusions: Persons who claim to possess high levels of the abilities required for success in their chosen field or work score higher on the self-confidence (self-esteem) measure than do students who claim to be less capable in their preferred vocational area ($p < .02$). There was also some evidence that the higher ability, more self-confident students felt they had more abilities not required in their work than did students who viewed themselves as less capable ($p < .01$). Both student types claimed to have more abilities of a kind they feel are required by the career to which they aspire than by occupations they do not wish to enter ($p < .01$). The general conclusion is that people prefer work for which they feel qualified over jobs requiring abilities they lack.

Marr, E. Some behaviors and attitudes relating to vocational choice. Journal of Counseling Psychology, 1965, 12, 404-408.

Respondents:

Number: 129
Sex: male
Age: 25
Residence: (not stated)
Date Data Gathered: 1962
Selection: (not stated)

Objectives: To explore the influence of self-concept, intelligence, parents' occupational level, and relationship to father on vocational choice. Dimensions included time of decision, certainty of choice factors considered, and self-direction in choice.

Methodology: Questionnaire and interview data collected in the Career Pattern Study (Super) were used. Measures included a modified form of Bills' Index of Adjustment and Values for self-concept, Otis Quick Scoring Mental Ability Test for intelligence, questions regarding relationship to father or father substitute, questions on vocational plans, and information on job history.

Results and Conclusions: A higher proportion of those who had made a choice had a father or father substitute whom they had accepted ($\chi^2 = 24.6$, $p < .001$). However acceptance of father was not related to self-direction in choice and time of decision. Making a choice was not related to parent's occupational level, self-regard, variability in self-rating, or intelligence. But early deciders were more self-directing ($\chi^2 = 11.26$, $p < .05$), and more desirous of continuing their occupation ($\chi^2 = 23.0$, $p < .001$). Non-self-directing subjects and those who were ambivalent about their occupations had lower self-regard scores than the others ($F = 3.37$, $p < .05$; $F = 3.23$, $p < .05$).

McLaughlin, D. H. and Tiedeman, D. V. Eleven-year career stability and changes as reflected in Project TALENT data through the Flanagan, Holland, and Roe occupational classification systems. Journal of Vocational Behavior, 1971, 5 (2), 177-196.

Respondents:

Number: number included in follow-up not stated
Sex: male
Age: high school in 1960
Residence: nationwide
Date Data Gathered: 1960; 1961; 1965; 1971
Selection: 5% stratified random sample selected in 1960

Objectives: To show the relative stability of careers over various time intervals using three occupational classification systems.

Methodology: Three occupational classification systems (Flanagan, Holland, and Roe) are applied to TALENT data. TALENT students were asked what their occupation is or will be each time they were surveyed. A purpose of the study is to evaluate the relative stability of the different classification systems over different time intervals and to observe the extent to which frequencies of career change conform to the models underlying the systems.

Results and Conclusions: With expected proportions of cases which remained in the same career based on the assumption of no tendency to remain in that career, all observed proportions (1961, 1965 and 1971) are significantly greater than the expected proportions at beyond the .0001 level of confidence, for all three classification systems (Flanagan, Holland, and Roe).

Predictability was not extremely high for any of the systems.

All three classification systems show essentially the same relative levels of career stability across different time intervals. Therefore, there is no evidence in this study that people are more stable according to one type of categorization at early stages and more stable according to a different categorization at later stages.

Directionality of change is equally great in all three systems; directionality is significantly greater for changes with respect to high school plans. The direction of career flow was away from intellectual careers to careers in business and sales.

Meir, E. and Friedland, N. The relationship between intrinsic-extrinsic needs and occupational preferences. Journal of Vocational Behavior, 1971, 1, 159-165.

Respondents:

Number: 80
Sex: male and female
Age: 17-18
Residence: Israel
Date Data Gathered: 1970
Selection: school classes

Objectives: The authors felt that high school students who expressed a liking for the skills and functions required in a given occupation (intrinsic factors) on one questionnaire would probably express a liking for that occupation when asked to rate it on a separate occupational rating form. Furthermore, they reasoned that expressed preference for "extrinsic" factors such as high income and prestige would be unrelated to the occupational preference ratings.

Methodology: Questionnaires

Results and Conclusions: The patterns of responses to the two questionnaires confirmed the author's hypothesis ($p < .002$).

Miller, A. and Tiedeman, D. V. Decision making for the '70's:
The cubing of the Tiedeman paradigm and its application in
career education. Focus on Guidance, 1972, 5(1), 1-15.

In this article the authors review Tiedeman and O'Hara's theory
of vocational choice, enlarge that theory, and indicate applica-
tions to the expanded theory.

The expanded Miller-Tiedeman cubistic model of decision making
draws together three basic elements--the psychological, problem,
and self-conceptualizing states. To illustrate the model they
have depicted a 3x3x3 cube with the following factors:

Psychological States

Accommodation
Clarification
Exploration

Problem Condition

Problem Forming
Problem Solving
Solution Using

Self-Comprehension

Learning About
Doing
Doing with Awareness

By moving through the psychological states, a person moves his
problem-forming activity to solution using activities and progresses
toward doing with awareness.

Application of the theory involves the teaching of decision making
using the immediate experience of the person. In this way decision
making becomes personal and has meaning to the individual. The
authors assume that decision making can be improved by learning
from your own decisions the stages your decisions go through, the
skills you use in these stages, and your style of decision making.
Counselors are encouraged to help students become more aware of their
decision-making styles.

Morrow, Jr., J. M. A test of Holland's theory of vocational choice.
Journal of Counseling Psychology, 1971, 18 (5), 422-425.

Respondents:

Number: 323

Sex: male and female

Age: 20-21

Residence: University of North Carolina

Date Data Gathered: 1970

Selection: all mathematics and sociology majors

Objectives: The author tested a hypothesis that students who are highly interested in a particular occupational area (as determined by their Vocational Preference Inventory scores) will be happier with a college major that prepares them for that occupation than with one that is not related to it.

Methodology: Holland Vocational Preference Inventory ratings were correlated with responses to a questionnaire.

Results and Conclusions: Mathematics and sociology majors completed the Vocational Preference Inventory as well as a questionnaire in which they rated how happy they were with their choice of major. Their answers only partially confirmed the hypothesis. Mathematics majors who were interested in scientific, engineering, or "mechanical" occupations (Holland's "Intellectual" and "Realistic" types) seemed somewhat happier with mathematics as their major than did those math students who were primarily interested in artistic, social service, or business careers ($p < .01$). People who majored in sociology, however, seemed equally happy with their choice, regardless of where their primary occupational interests might lie.

The author concluded that Holland's theory needs more research.

Musgrave, P. W. Continuities in the sociological theory of occupational choice: A note. Sociological Review, 1968, 16(1), 93-97.

Objective: To respond to criticisms by M. A. Coulson, E. T. Keil, D. S. Riddell, and J. S. Struthers regarding an article written previously by the author entitled, "Towards a Sociological Theory of Occupational Choice."

Results and Conclusions: A clarification of the term "anticipatory socialization" was suggested which was defined as "prior role rehearsal that anticipates a future role that is ultimately played" in comparison to "misplaced anticipatory socialization" which was defined as the "prior role rehearsal that anticipates a future role that in fact is not taken up." The importance of the influence of social structure was restated, and the validity of using a "flexible" consensus approach as opposed to finding deviance to generate hypotheses was stressed. Therefore, it was suggested that the best method of seeking a sociological explanation of occupational choice is to follow a two stage approach by: (1) considering the socialization experience up to the point of choice and (2) examining the choice situation by using the exchange theory developed and outlined by Ford and Box which concentrates on the actual choice situation.

National Bureau of Economic Research. The measurement and interpretation of job vacancies: A conference report. New York: National Bureau of Economic Research, 1966.

This book is a compilation of papers and responses presented at the conference of the National Bureau of Economic Research. In the initial paper, Dunlop raises four questions he considers to be fundamental with respect to the meaning and value of job vacancy data in the United States. He recommends that drastic revisions be made in the present system of job classification and suggests an alternative system. Holt and David present a model for developing a theory which would incorporate both the demand and the supply aspects of the labor markets. In response, Lester points out the limited applicability of the model by Holt and David. Gilpatrick questions the validity of the cornerstone of the model. Friedman of the AFL-CIO suggests that resources might be better spent for obtaining more such detail in current reports of the Bureau of Labor Statistics than in collecting job vacancy data.

The second part of the book focuses on the experiences of other countries in the collection and use of job vacancy data. A summary of the practices in twenty-three countries is provided by Shelton and Neef. The results of this survey lead the authors to conclude that job vacancy data in these countries are not as complete as unemployment data. A detailed exposition of the collection and use of data in Canada, Japan, France, the Netherlands, and Sweden is presented in the remaining five papers.

The third section of the book centers on new experimental evidence on the measurement of job vacancies in the United States. Elizabeth Slotkin presents the findings of a pilot study undertaken by the Illinois Bureau of Employment Security to ascertain the feasibility of collecting vacancy data. Results of this study served as a partial basis for the job vacancy survey program undertaken by the U.S. Department of Labor, reported by Wingsid. Chavrid and Krupstin present information on the extent to which data on job openings as collected by the U.S. Employment Service may reflect total job vacancies. In the final paper, Ferber and Ford explored the analytical value of collecting data on an ex-ante as well as an ex-post basis.

The last section of the book centers on alternative approaches to measuring the demand for labor. Boochum investigated the behavior of three sets of available data that reflect that unfilled demand for labor and traces their course during business cycles. In the last two papers, Conant and Moore discuss possibilities of developing new data from sources not previously stated. Conant considers private employment while Moore investigates the feasibility of obtaining and using job vacancy information from temporary help services. In response to these papers, Seligman and Joseph expressed pessimistic views. Seligman points out that clear-cut relationships between job vacancies and each of the indicators have yet to be

established. Joseph identified a need for learning more about the characteristics of job vacancies and their role in labor market operations.

In the conference summary, the following questions were raised as issues for further research:

1. How should job vacancy data be collected?
2. How should job vacancies be defined?
3. To what extent should related information be sought with job vacancy data?
4. How are job vacancy data to be interpreted within the institution framework of an economy?
5. To what extent should data collection agencies attempt to guard against the misuse of job vacancy data?
6. How well can the demand for labor be gauged by means other than the collection of job vacancy data?
7. How can job vacancy data be used to analyze labor markets and economic conditions?

Nelson, J. I. Participation and college aspirations: Complex effects of community size. Rural Sociology, 1973, 38(1), 7-16.

Respondents:

Number: 52,639
Sex: male and female
Grade: juniors in high school
Location: Minnesota
Date Data Gathered: 1969
Selection: every junior (actually 95%) in all Minnesota high schools in 1969

Objective: To explore how community size and subsequent differences in participating in extracurricular school activities contribute to the association between difference in residence (urban-rural) and college aspirations.

Methodology: College aspirations were gauged by whether a student selected the alternative "college or university" when answering a question regarding further schooling planned after high school. A 16-item checklist was devised to measure the extent of involvement in extracurricular activities. Community size differences, sex, and socioeconomic status (SES) were also noted. Intelligence scores were gathered from the student's performance on the Minnesota Scholastic Aptitude Test.

Results and Conclusions: The results of study were not significant. However, the author states that community status has a moderate negative relationship to participation in extracurricular activities (-.43) when SES, intelligence, and sex are partialled out, and that participation in turn has a moderate positive relationship to aspirations when SES, intelligence, sex, and community status are partialled out (+.36). It appears that attending an urban school apparently raises scores on some variables related to aspirations (e.g., proximity, values) but reduces scores on a different variable moderately related to aspirations (e.g., participation). The overall effect, when participation is not accounted for in the analysis, is apparently only a slight relationship between community size and aspirations.

Norton, J. L. Current status of the measurement of vocational maturity. Vocational Guidance Quarterly, 1970, 165-169.

A brief review of various schemes that have been proposed as means of assessing vocational maturity, or readiness to select and embark upon a career. Outlines are provided indicating the kinds of criteria that Super, Gribbons and Lohnes, Crites, and others have used to appraise a person's vocational readiness.

The author notes that normative criteria proposed by the different writers are basically the same, with considerable overlap. The conclusion offered is that while no one reliable measure exists at present, there is still hope that one will yet appear.

C-156

Olive, H. Sex differences in adolescent vocational preferences.
Vocational Guidance Quarterly, 1973, 21 (3), 199-201.

Respondents:

Number: 434

Sex: male and female

Age: high school

Residence: New Jersey

Date Data Gathered: (not stated)

Selection: a sample of students from three high schools

Objectives: To compare the social class status of male and female adolescents' vocational preferences.

Methodology: Students were asked what occupation they would "like to enter." These occupational choices were scaled using the Bureau of Census scoring method of 01 to 99 for socioeconomic status. The Otis Quick Scoring Mental Ability test was used as a measure of intelligence.

Results and Conclusions: The males and females showed no significant difference in their general intellectual abilities. The females as a whole scored higher in the prestige and status of the jobs they would like to do ($p < .05$), but their responses clustered around 80 to 89, including social work, teaching, and secretarial work, and they did not aspire to the most prestigious positions ranking 90 to 99.

Osipow, S. H. Success and preference: A replication and extension.
Journal of Applied Psychology, 1972, 56(2), 179-180.

Respondents:

Number: 180
Sex: male and female
Age: college
Residence: Ohio State University
Date Data Gathered: not stated
Selection: enrolled in introductory psychology

Objective: To explore the influence that task success has on task preference.

Methodology: Subjects worked on verbal (nonsense syllables) or visual (geometric forms) tasks. Three success-failure reinforcement schedules were used with success ratios of 85-15%, 70-30% and 50-50% with the preferred stimulus negatively reinforced at the same ratio as the nonpreferred type was positively reinforced. Information was gathered on preferences before the task and after the subjects had received feedback on their performance.

Results: The subjects' task preferences changed in the direction of the positively reinforced stimulus ($p < .01$), while more of those subjects who received no differential positive and negative feedback retained their original task preference.

Osipow, S. H. and Scheid, A. B. The effect of manipulated success ratios on task preference. Journal of Vocational Behavior, 1971, 1, 93-98.

Respondents:

Number: 230
Sex: male and female
Age: college
Residence: Ohio State University
Date Data Gathered: not stated
Selection: enrolled in introductory psychology

Objective: To explore whether preferences are intrinsically determined in that the task is gratifying to the individual or whether preferences are extrinsically determined as a result of factors such as approval and rewards.

Methodology: Subjects worked on verbal (nonsense syllables) or visual (geometric forms) tasks. Three success-failure reinforcement schedules were used with success ratios of 85-15%, 70-30% and 50-50% with the preferred stimulus negatively reinforced at the same ratio as the n preferred type was positively reinforced. Information was gathered on preferences before the task and after the subjects had received feedback on their performance.

Results: The subjects' task preferences changed in the direction of the positively reinforced stimulus ($p < .01$). The authors emphasize the importance of this as other research shows that it is difficult to change preferences once they have been expressed. The 85-15% success-failure reinforcement schedule produced more impact than the 70-30% ratio.

Pallone, N. J., Rickard, F. S., and Hurley, R. B. Key influencers of occupational preference among black youth. Journal of Counseling Psychology, 1970, 17 (6), 498-501.

Respondents:

Number: 379 (161 black, 218 white)
Sex: male and female
Grade: primarily 11th and 12th graders
Region: urban New York state communities
Date Data Gathered: estimated to be 1969
Selection: Randomly selected from a larger previous study
(Palone, Rickard, and Hurley, 1969).

Objectives: To ascertain the influence of nine specific key figures (important others) upon the vocational development of black youth from working class families, and to determine whether these key figures had a similar influence on a reasonably comparable group of white youth.

Methodology: Each student's socioeconomic status was measured through the application of Hamburger's Revised Occupational Scale (classifications based on head of household). Data of occupational preferences and expectations were obtained from a previous study (Pallone, Rickard, and Hurley, 1969). The Dictionary of Occupational Titles was employed to aid in labeling and rank ordering each student's key figures (nine) who were influential in his career choice.

Results and Conclusions: In each of the four groups studied: black male and female, and white male and female, the two most influential figures were the parent of the same sex and an appropriate occupational role model. Black females were the only group that did not rate the latter person as their first preference in being most influential in terms of vocational development. Only among black males did the influence of the parent of the opposite sex really equal that of the same-sex parent (both ranked 2.5 out of 9). Within the other three groups the parent of the opposite sex was seen as having little influence and was ranked relatively low (6th and 7th). Fourth in the order of influence were teachers, except for one group who ranked them fifth (black females). Counselors were ranked seventh by males of both races, and eighth by females of both races. Therefore, the greatest similarity in terms of key figure influences on occupational preference was between black and white males ($r = .82$). Second in key figure similarities were male and female blacks ($r = .68$); third, black and white females ($r = .59$); and last male and female whites ($r = .48$). (No significant levels given.)

Panel on Youth of the President's Science Advisory Committee.
Youth: Transition to adulthood. Executive Office of the
President: Office of Science and Technology, June 1973.

The report focuses on the period of transition from child to adult and on the institutions in which that transition takes place for youth in the United States. The age period covered is 14-24. The report raises questions about the institutions for young people and proposes a number of changes. Part 1 gives an introduction and outlines objectives; Part 2 gives background on the institutions and processes that affect youth; Part 3 identifies important issues; and Part 4 suggests alternative directions for change.

The dominant institutions for youth are high school and college. The panel recommends that the environments for youth have broader objectives than those of school. These objectives are proposed:

Self-centered objectives:

1. Cognitive and non-cognitive skills necessary for economic independence and for occupational opportunities.
2. Capability of effective management of one's own affairs.
3. Capabilities as a consumer, not only of goods, but more significantly of the cultural riches of civilization.
4. Capabilities for engaging in intense concentrated involvement in an activity.

Responsibilities affecting others:

1. Experience with persons different from himself, not only in social class and subculture, but also in age.
2. The experience of having others dependent on one's actions.
3. Interdependent activities directed toward collective goals.

Part 2 discusses historical background, including the increasing trend to segregation of youth, the evolution of the rights of children and youth, demographic patterns, economic problems of youth, the nature of schools, the biological and psychological development of youth, and the youth culture.

Part 3 presents these seven issues to consider:

- segregation vs. integration with adults
- age segregation within youth
- principles for grouping youth in institutions
- patterning in time of learning and productivity
- role-segmentation vs. community
- the scope of formal schooling
- the legal status and rights of youth

The last part of the report proposes a number of changes in the institutions that affect youth. They recommend a number of pilot programs that can be expanded into full-scale policy changes contingent upon assessment of their effects. The recommendations are:

- development of more specialized schools
- reduction in size of high schools
- introduction of roles other than student role for a younger person in a school
- experimentation with placing students in settings outside the school for work experience and cultural enrichment
- encouragement of a mixture of part-time work and part-time school
- more intermixture of school and work, carried out at the work place
- encouragement of the continuation and growth of youth communities and organizations as they have long addressed some of the non-academic objectives
- review of procedures designed to protect workers under 18 as they are often a disincentive to employers
- use of educational values equivalent in value to the average cost of four years of college to be used for training and education

Perrone, P. A. Factors influencing high school seniors' occupational preferences. Personnel and Guidance Journal, 1964, 42, 976-980.

Respondents:

Number: 428

Sex: male and female

Age: high school seniors

Residence: small city and suburban rural area of Dutchess County, New York

Date Data Gathered: (not stated)

Selection: all the students attending three public schools

Objectives: The study explored the relationship between high school seniors' preference of an occupation and adherence to conventional values, goal orientation, and cognitive performance.

Methodology: Conventional values were measured using the California f-scale; goal orientation by a Personality Scale for Dominance; and cognitive performance by the Lorge-Thorndike Verbal and Nonverbal Intelligence Tests and a test of divergent performance devised by Getzels and Jackson. Students were also asked to give their occupational preference as a basis for placing them in groups as defined by Roe.

Results and Conclusions: None of the occupational groups could be distinguished along all the dimensions, but there were some significant differences between the preference groups. For boys, the measures of verbal and nonverbal intelligence and creativity discriminated among the occupational groups ($p < .01$) and for girls goal orientation and verbal intelligence discriminated ($p < .01$).

Phillips, B. N. School-related aspirations of children with different socio-cultural backgrounds. Journal of Negro Education, 1972, 41, 48-52.

Respondents:

Number: 331 (76 middle-class whites, 95 upper lower-class whites, 73 Mexican-Americans, and 87 blacks)

Sex: male and female

Grade: 4th grade

Location: Austin, Texas

Ethnic backgrounds: whites, blacks, Mexican-Americans

Date Data Gathered: could not be determined

Selection: fourth graders from four different elementary schools representing a "homogeneous" socio-cultural subgroup.

Objective: To determine the social and academic achievement aspirations in the classroom of children from different cultural and economic groups.

Methodology: Parts of the Children's School Questionnaire (30 items) were used as indicators of school-related social and academic achievement aspirations.

Results and Conclusions: According to the author, the findings indicate that: (1) blacks generally seem to have the highest hopes and desires (aspirations) for school achievement, both socially and academically; (2) differences between middle- and upper lower-class whites appear similar to the differences between blacks and Mexican-Americans, with middle-class whites and blacks having higher academic aspirations; (3) blacks seem to possess higher social aspirations than Mexican-Americans, and lower-class whites appear to have higher social aspirations than middle-class whites (the latter comparison being opposite for academic aspirations). However, the study reported no summary tables, making the levels of significance for the differences between the four groups on the variables measured difficult to determine.

Prediger, D., Roth, J., and Noeth, R. Nationwide study of student career development: Summary of results. American College Testing Program, ACT Research Report, 1972, 61.

Respondents:

Number: 32,000
Sex: male and female
Age: 8th, 9th, and 11th grades
Residence: United States
Date Data Gathered: (not stated)
Selection: a representative sample of students in 200 schools in the United States

Objectives: To determine: (1) what students say about their career development states and needs, (2) what students have done about occupational exploration and career planning, and (3) what students know about occupations and career planning.

Methodology: Students responded to 267 questions on a survey instrument. Study results are presented in the form of student responses to 61 selected questions and student performance on 10 scales measuring core components of career development.

Results and Conclusions: Student expressed need for help with career planning was in sharp contrast to the amount of help they felt they received. This discrepancy was reflected in what students had (and more often, had not) done to prepare for the difficult career decisions to be faced. Their lack of knowledge was a testimonial to their need for help. Considered together, these three vantage points for viewing student career development provided a consistent and dismal picture. The researchers felt the study results presage the unfortunate amount of floundering and prolonged states of indecision that are costly both to the individual psyche and to the corporate body. From the results of this study, the authors felt that current attempts to implement new approaches to career guidance and career education were justified.

Rehberg, R. A. and Hotchkiss, L. Educational decision makers: The school guidance counselor and social mobility. Sociology of Education, 1972, 45(4), 339-361.

Respondents:

Number: 2,276

Sex: male and female

Age: freshman and sophomore year high school students

Residence: urban and suburban in the southern tier region of New York state

Date Data Gathered: 1967 and 1968

Selection: all freshmen and sophomore students who attended seven public and parochial schools

Objective: The primary objective was to assess the effect of the secondary school counselor on adolescent educational goals.

The researchers also explored the following questions:

1. To what degree is frequency of student exposure to educational counseling associated with the socioeconomic status, parental educational orientation and measured intelligence of the student as well as with his own educational expectations?
2. To what degree do these same variables, as well as the educational advice given to the student by his teachers, influence the level of educational advice which the student reports to be receiving from the counselor?
3. To what degree does the counselor's educational advice affect the level of student's expectation for education beyond high school, not the cumulative influences of the above listed variables?

Methodology: In 1967 an hour-long questionnaire was administered. The following variables were measured: level of educational expectation, frequency of counselor contact, intelligence, socioeconomic status, perceived parental educational encouragement. In April and May of 1968 a similar test was administered to the same group of students. Data were obtained from the 2,276 students who participated in both tests. Data were analyzed using bi-variate percentages, bi- and multivariate correlations, and path analysis for additive and recursive systems.

Results and Conclusions: Analysis of the data revealed:

1. Counselors had more contact with students less disposed toward higher education ($r = -.11$ males and $-.15$ females freshman level and $-.13$ males and $-.16$ females sophomore level).
2. The students' educational goals ($.40$ males and $.45$ females) and intelligence ($r = .33$ males and $.43$ females) exerted a direct effect on the counselors' educational advice.

3. The counselor had an incremental effect on the student's educational expectations, independent of the influences of the predisposing variables in the analyses (the effect of a one standard deviation for males and .25 for females). With a standard deviation of .94 Hollingshead scale units for males and .87 for females, and with each scale unit equivalent to about two years of schooling, the net effect of the counselor comes to a little less than one-third of a year for males and to something less than one-half a year for females.
4. A student's early educational expectations appear to have a critical effect on subsequent expectations.

In comparing the sum of direct effects on sophomore expectations of "extra" and intra-school influences, for males the "extra" school influences of status (path .06), intelligence (.15), parental encouragement (.03), and freshman expectations (.55) sum to .79, while the "intra" school influences of teachers and counselor advice (.05 and .15 respectively) add up to .20, a ratio of 4 to 1; for females, .64 and .32 respectively, a ratio of 2 to 1.

Rehberg, R. A. and Sinclair, J. Adolescent achievement behavior, family authority structure, and parental socialization processes. American Journal of Sociology, 1970, 75 (6), 1012-1034.

Respondents:

Number: 1,455
Sex: male
Age: 14
Residence: New York state
Date Data Gathered: 1967
Selection: representative

Objectives: The study proposed to investigate the relationship between parental achievement training, independence training, autocratic vs. democratic parental posture, socioeconomic status and the higher educational aspirations of high school freshmen boys.

Methodology: Questionnaires completed by 9th grade boys

Results and Conclusions: (1) The responses of 9th grade boys to questionnaire items showed a low positive correlation between report of parental encouragement to strive for success and plans of sons to attend college ($p < .05$). Such plans were not related to reported parental emphasis on self-reliance (independence training); (2) reported achievement emphasis was very slightly (but not significantly, related to socioeconomic status; (3) a reported achievement-orientation was more often associated with a "democratic" or participative type of parent-son relationship (as reported by the sons) than with a more "autocratic" relationship ($p < .05$); (4) no difference was found between white and blue collar families in percentage of reported democratic or autocratic parent-child relationships.

The authors concluded that, according to their evidence, boys who report higher achievement aims (college education) are more likely to report parental encouragement of achievement in general than are boys who do not aspire to higher education. However, they qualify this generalization by observing that the magnitude of the measured association between parental achievement training and one's ambition is low. They suggest that "there is more interfamilial variance in achievement behavior unaccounted than accounted for."

Note: With an $N = 1,455$, a correlation coefficient of .06 is significant at the .05 level and a coefficient of .08 is significant at the .01 level. Virtually all correlations were significant at .05 and many at .01.

Resnick, H., Fauble, M. L., and Osipow, S. H. Vocational crystallization and self-esteem in college students. Journal of Counseling Psychology, 1970, 17, (5, 1), 465-467.

Respondents:

Number: 216 (114 males and 102 females)
Sex: male and female
Grade: college students
Location: Ohio State University (OSU)
Date Data Gathered: estimated to be in 1969
Selection: students ranging from freshman to those possessing bachelor's degrees who were enrolled in introductory psychology at OSU.

Objective: To determine whether college students exhibiting high self-esteem show more advanced vocational crystallization than college students low in self-esteem. Crystallization is referred to by the authors as the formulation of tentative ideas regarding the level and field of future work, along with a tentative commitment, thus making way for specification where a general choice becomes specific.

Methodology: A questionnaire was developed for this study which was devised to obtain background information from the individual such as age, parental income, grade point average, mother's working pattern, etc. The Kuder Preference Record was employed to determine a person's preference for a certain career. The Tennessee Self-Concept Scale was used to provide an objective measure of self-esteem.

Results and Conclusions: The relationship between vocational crystallization and self-esteem in college students was assessed by observing differences on two measures of vocational crystallization in students high and low in self-esteem scores on the Tennessee Self-Concept Scale. No differences in self-esteem were noted in scores above the 75th percentile on the Kuder Preference Record. However, differences were observed in the certainty of high- and low-self-esteem students, and the relationship was the same for both sexes ($p < .05$). The authors also discuss the possibility that Kuder scores above the 75th percentile actually represent vocational diffusion rather than crystallization.

Risch, C. and Geymer, L. A framework for investigating career choice of women. Vocational Guidance Quarterly, 1967, 16(2), 87-92.

The authors discuss a conceptual framework developed by Parsons and others based on behavior related to systems of action and relates this to career choice. In this framework the wife-mother assumes child-bearing and child-rearing functions, an "expressive" role. The husband-father has an "instrumental" role and connects the family unit with other social systems. The authors hypothesize that women pursuing expressive occupations will tend to have had a mother who assumed an expressive role and will tend to possess nurturant need-disposition clusters, while women pursuing instrumental functions will tend to have had an instrumental mother and will possess more "conformity" need-disposition clusters.

Roe, A., and Siegelman, M. The origin of interests. APGA Inquiry Studies. Washington, D.C.: American Personnel and Guidance Association, 1, 1964.

Respondents:

Number: 142 (Study I), 94 (Study II)

Sex: male (Study I), male and female (Study II)

Age: 19 to 22 (Study I), 32 to 36 (Study II)

Occupation: students (Study I), and engineering and social work personnel (Study II).

Date Data Gathered: estimated to be 1961

Selection: Study I: names drawn in sequence from alphabetical lists of Harvard seniors in different fields of concentration, and if their parents were either deceased or divorced they were not included. If a field of concentration was under-represented, another list was drawn up and the previously described procedure was repeated. Finally, in the under-represented fields, in order to balance the representation, invitations were sent to all who met the requirements. Study II: An adult sample with commitment to engineering or social work as a lifetime occupation and holding a job at present in the field, which was not primarily or only administrative

Objective: To determine if the degree of person-orientation in later life is generally positively related to the amount of love and attention received in childhood from parents. The degree of casualness or demandingness was hypothesized as being irrelevant to later person-orientation. Individuals from engineering and social work were selected as occupations representing the extremes of person-orientation.

Methodology: A Biographical Questionnaire was used (61 items) which was partially modified from other questionnaires and partly constructed for this study. The purpose of this questionnaire as well as a semi-structured interview was to investigate family background, occupational choice and factors influencing it, past relations with parents and others, and present and past interests. In addition, the Parent-Child Relations Questionnaire (developed from the Roe model for parent-child relations) was administered to each subject (factors regarding relations with mother and father including the tripolars of Loving-Rejecting, Casual-Demanding, and the unipolar factor of Overt Attention).

Results and Conclusions: For the student sample it appears, as hypothesized, that person-orientation is related to childhood experiences ($p < .05$); and that the Casual-Demanding factor has no effect upon the degree of person-orientation. One effect not foreseen was that the early Social Experience factor seems most important in predicting later person-orientation ($p < .05$).

For the engineering and social work sample, it appears that the farther from cultural sex stereotype the occupational was, the more likely it was that the person had experienced particular pressures while growing up which influenced his choice. The male social workers (a field composed predominantly of women) and the female engineers (a field made up of mostly men) had more pressure in their early backgrounds than the female social workers and the male engineers ($p < .05$). The authors concluded that for those who had experienced these pressures the occupation sought seemed to offer a replacement for something lacking--in the case of the male social workers, love and understanding; in the case of the female engineers, a father substitute.

Salomone, J. J. and Gould, D. A. Review and synthesis of research on occupational mobility. The Center for Vocational and Technical Education Information Analysis Series, 1974, 96.

The book examines occupational mobility and the influence of social forces and education on mobility. It is based on a review of selected sociological literature on mobility in the United States.

The literature is inconclusive in regard to whether there is more or less mobility than previously. There are a number of factors limiting mobility such as family background, lack of educational opportunities, and changes in fertility patterns; but there are also forces which have increased opportunities, including technical advances, economic expansion, and availability of contraception. Factors mentioned included these: women have lower incomes than men; as one becomes older it is increasingly difficult to find jobs; blacks are achieving some upward mobility; family background influences values, attitudes, and aspirations; amount of schooling is positively related to income; there are inequalities in educational environment; and unionization affects mobility.

The authors discuss the relationship of mobility and vocational education, which generally trains people for sub-professional jobs. Constraining forces for the mobility of people in vocational education include the stability of social classes, lack of collective organizations in expanding areas, and the conflicting interests of vocational educators which could lead to an over-expansion of vocational education.

The book also includes a general discussion in these areas: class stratification and its relationship to education, occupation and income; types of mobility; the connection between the values of a culture and mobility; and the consequences of mobility.

Sanborn, M. P. Vocational choice, college choice, and scholastic success of superior students. Vocational Guidance Quarterly, 1965, 13, 161-168.

Respondents:

Number: 60

Sex: male and female

Grade: college freshmen

Location: Wisconsin

Date Data Gathered: estimated to be between 1961 and 1963

Selection: intellectually "superior" students, one group (N = 30) unsuccessful (earning first semester college grade point averages lower than 2.00); and the other group (N = 30) successful (completing their first semester of college with grade point averages above 2.00).

Objective: To explore possible relationships between superior students' vocational goals, educational goals, reasons for selecting particular colleges to attend; and their success or lack of success in their first semester of college.

Methodology: The data consisted of high school and college grades and materials from the Research and Guidance Laboratory for Superior Students at the University of Wisconsin collected during the students' high school years, which were used as a source relative to their educational plans. Follow-up data, secured from questionnaires and interviews completed during the freshman year in college, were used to determine criteria for college choice, major fields of study, and development of educational and vocational goals since leaving high school.

Results and Conclusions: The findings indicated that: (1) The overall scholastic performance of Group A (high achievers and defined as successful) appeared to become more marked in comparison to Group B (low achievers and defined as unsuccessful) as they progressed through high school and into college ($p < .01$). (2) Major differences existed between Groups A and B in factors considered when choosing a college, e.g., specific programs ($p < .01$), general academic features ($p < .05$), cost ($p < .05$), and location ($p < .05$). (3) A significant relationship existed between Group A's college success and their selection of a major field of study during their freshman year or before ($p < .01$). (4) A significant relationship between scholastic success and the degree of specificity of vocational goals was noted ($p < .01$) when comparing Groups A and B. (5) Group A more often than Group B specified a 10-year goal which was found to be related to success in college ($p < .01$). (6) Students who had vocational goals tended to take academic factors into account more often when choosing a college than did students who were undecided about career goals ($p < .20$).

The author concluded that success or lack of success in school seems to be related to the "realism" of educational goals, the consideration of long-range goals, and to a student's reasons for selecting a particular college.

Schultz, T. W. Investment in human capital. American Economic Review, 1961, 51, 1-17.

The paper discusses the role of human investment in economic development, the types of human investment, and the policy implications.

Human knowledge and skills are in great part the product of investment and, combined with other human investment, are important in accounting for the productivity of technically-advanced countries. There are definite wage differentials between various groups based on age, race, region of the country, and farm or non-farm background. The author discusses the reasons for these differences and also considers the implications of the capital-income ratio for development. He views human investment as both consumption and investment. He explains how these activities improve human capability: health facilities and services, on-the-job training, formal education, adult education, and migration. Of these activities it is easiest to estimate the costs and returns of formal education. In regard to policy implications he discusses the discriminatory effects of tax laws and lending policy on human capital, the hindrances to free choice of a profession, the detrimental effects of unemployment, the needs of special groups, the need for investment in human capital, and the role of public investment.

Schultz, T. W. Investment in human capital. Reply. American Economic Review, 1961, 51, 1035-1039.

In this brief article Schutz replies to the points raised by Shaffer (1961). He feels that Shaffer has identified some major difficulties in identifying and measuring returns through earnings and that the points Shaffer makes regarding the difficulty of separating investment from consumption are of some importance. He disagrees with Shaffer's view of policy.

Schultz, T. W. The rate of return in allocating investment resources to education. Journal of Human Resources, 1967, 2 (3), 293-309.

This article discusses the recent work in the area of the economic value of education. The author feels that human capital is a major omission in capital theory and reviews relevant work in this area. Studies show that education does account for substantial increases in national income or about a fifth of the growth of the U.S. economy from 1929 to 1957. Studies have shown net benefits from all levels of education, particularly at the college level, but they do not consider the consumption value of education. He also deals with the question of whether the allocation of investment resources to education is efficient. The future is uncertain and the returns on school are in large part unpredictable. Maintaining flexibility by postponing specialization in education is one way of being able to take advantage of new information over time.

Sewell, W. H. and Shah, V. P. Socioeconomic status, intelligence, and the attainment of higher education. Sociology of Education, 1967, 40 (1), 1-23.

Respondents:

Number: 9,007

Sex: male and female

Age: high school seniors through college graduates

Residence: Wisconsin

Date Data Gathered: 1957, 1964

Selection: a questionnaire was given to all high school seniors in Wisconsin in 1957; a follow-up mail survey was done in 1964-65 of a sample of about one-third of these students.

Objectives: To determine the relative influence of socioeconomic status and measured intelligence on college plans, college attendance, and college graduation.

Methodology: Information was gathered on socioeconomic status of the family; high school record; and educational attitudes, goals, and attainments. Data were analyzed using cross-tabular analysis, effect parameters, and path analysis.

Results and Conclusions: Both socioeconomic status and intelligence were shown to have direct effects on planning for college, college attendance, and college graduation. Intelligence was more important in determining who eventually graduated from college. Socioeconomic status had more of an influence on females than on males, particularly in terms of college plans and attendance.

Several path diagrams with path coefficients were presented to show various relationships for males. Socioeconomic status contributed .32 to college plans and the effect of intelligence was .34. When it came to college graduation, the effect of socioeconomic status was reduced to .24 and intelligence was .33. For females, socioeconomic status contributed .37 to college plans while intelligence was .23. When it came to college graduation, socioeconomic status was only .29 and intelligence was .24.

Sewell, W. H. and Shah, V. P. Parents' education and children's educational aspirations and achievements. American Sociological Review, 1968, 33 (2), 191-209.

Respondents:

Number: 9,007

Sex: male and female

Age: 24

Residence: Wisconsin

Date Data Gathered: 1964-1965

Selection: all 1957 Wisconsin high school seniors

Methodology: The purpose of the study was to investigate the relationship between discrepancy or consistency in parents' educational achievements and their children's perceptions of parental encouragement, college plans, attendance, and graduation.

Objectives: Multivariate, cross-tabular and regression analyses of questionnaire and interview data.

Results and Conclusions: Level of father's education was somewhat more strongly associated with perceived degree of parental encouragement than was mother's educational level ($p < .05$). The same relationship appeared with college plans, attendance, and graduation. These effects obtained only for males. For females, father's and mother's education seemed to have a more equal effect. The independent effect of mother's education is slight but is greater for females than for males ($p < .05$). When parents have discrepant levels of education, the answer to the question of which parent's education has more effect on educational aspirations depends on a child's sex and intelligence. Which direction? If there is a discrepancy between the parents with low and middle education, generally it is father's rather than mother's education which exerts more influence on aspiration and achievement. If there is a discrepancy either between the parents with low and high education or between the parents with middle and high education, then also it is generally father's rather than mother's education which exerts more influence on aspirations and achievements of children with high intelligence, but it is mother's rather than father's education which exerts more influence on aspirations and achievements of children with low intelligence. Discrepancy in parents' educational levels seems less related to children's aspirations than is consistently high educational achievement of both parents.

Sewell, W. H. and Shah, V. P. Social class, parental encouragement, and educational aspirations. American Journal of Sociology, 1968, 73 (5), 559-572.

Respondents:

Number: 10,318
Sex: male and female
Age: 17
Residence: Wisconsin
Date Data Gathered: 1957
Selection: all Wisconsin seniors

Objectives: The study attempted to determine: (1) whether or not social class differences in college plans of youth can be explained in terms of the differences in the level of perceived parental encouragement when intelligence is taken into account; (2) what additional influence parental encouragement might have on college plans over and above the influence of social class and intelligence; (3) direct or indirect influences of social class, intelligence and parental encouragement in which social class differences in college plans might be eliminated.

Methodology: Correlational, path, and cross tabular analyses of student questionnaire and test data.

Results and Conclusions: Parental encouragement, socioeconomic status, and intelligence were each independently related to college plans of high school boys and girls ($p < .05$). Neither intelligence nor parental encouragement, independently or together, could account for social class differences in college plans. Parental encouragement appeared to be a powerful intervening variable between socioeconomic class background and intelligence of the child and his educational aspirations ($p < .05$). It seemed that parental encouragement had its strongest effect on the college plans of boys and girls who scored high on intelligence and were from higher socioeconomic class families ($p < .05$).

Shaffer, H. G. Investment in human capital: Comment. American Economic Review, 1961, 51, 1026-1034.

Shaffer is responding to Schult's article "Investment in Human Capital," 1961. Shaffer argues that it is inadvisable to treat man as human capital. His three main points are:

1. Investment for the improvement of man is impossible to separate from consumption.
2. It is virtually impossible to allocate a specific return to a specific investment in man. For example, it is difficult to determine the return on a college education because those who attend college differ in significant ways from those who do not in areas such as intelligence and family background. Also there are maintenance costs to higher level positions, such as cars and house, which are not generally considered.
3. It would be ill-advised to utilize information on human capital in policy formation because of the difficulties cited above.

Shaw, M. C. The function of theory in guidance programs. Guidance Monograph Series, 1968, Series 1.

Shaw presents a model for developing guidance programs. He begins by discussing the need for a theory to serve as a basis for planning and evaluating guidance activities. The theory should specify when guidance services should be given, who will be the recipient of the services, how they will be rendered, and why. It should address the issue of whether services should be rendered directly or indirectly and the number of students it should reach.

Shaw presents a diagram illustrating a general model for guidance which addresses these issues and identifies different approaches. The model is elaborated in terms of learning difficulties and behavior problems, but could be interpreted in terms of career counseling.

The book emphasizes the need for clear objectives and the need to make values and assumptions explicit. Also, programs must select a primary focus to be effective. Procedures for planning are outlined and the problems that might be encountered are discussed. The plans developed by a school district are included as an example.

Siegel, C. L. F. Sex differences in the occupational choices of second grader. Journal of Vocational Behavior, 1973, 3 (1), 15-19.

Respondents:

Number: 61
Sex: male and female
Age: second grade
Residence: suburb of Boston
Date Data Gathered: (not stated)
Selection: (not stated)

Objectives: To investigate sex differences in the occupational choices of children in primary school grades.

Methodology: Open ended questionnaire on what work they would like to do, what they would least like to do, and what their father did.

Results and Conclusions: Distinct sex differences in occupational choices were apparent. Boys chose twice as many occupations as girls. There was almost no overlap between the selections of the two groups. Of 29 occupations selected as most desirable, only one was mentioned by both boys and girls. Of 39 selected as least desirable, only two were mentioned by both sexes. More boys (88%) than girls (76%) knew their father's occupation and none of the girls selected that occupation for themselves. A series of hypotheses based on this data were presented.

Simons, J. B. An existential view of vocational development. Personnel and Guidance Journal, 1966, 44, 604-610.

A theory of vocational development is presented in this paper, within the framework of existentialism. The theory perceives man's life as a continuum of movement with career choice the most significant thrust to or away from the goal of involvement in "I-Thou" relationships. The three stages in the process are: the I-It stage or the childlike stage in which the individual looks upon others as objects to be manipulated. The Thou stage is one in which the individual objectively observes humanity and comes to realize his objective or real self. Fantasies concerning himself and others dissolve for a real I-Thou relationship in which relationships ultimately mean fulfillment for the individual and others. The author proceeds to contrast the existential theory with those of Holland, Roe, Super, and Tiedeman and O'Hara. With respect to Holland's theory, the distinction lies in the fact that an individual may select an occupation because he was either a success or failure at the objectification process, not because of natural inclination that way. Both Roe's theory and existential theory point to career choice as the result of basic need. The difference lies in the framework of the two theories. While Super's theory states that vocational development is one aspect of personality development, the existentialist would say this is the foundation of personality development. Because the existential view has developed a system of vocational development, it appears to renounce the more fluid concepts of Tiedeman and O'Hara.

Singell, L. D. Investment in education and ghetto poverty: A note on the dropout decision. Social Science Quarterly, 1972, 53, 122-128.

Objectives: To demonstrate that the decision of low socioeconomic status nonwhites to drop out of school can be explained through economic reasons (human capital theory) rather than merely through a difference in values, i.e., being unable to delay gratification.

Results and Conclusions: Education is viewed as an economic hazard to low socioeconomic status nonwhite families because:

1. The family has less expendable income but the costs of education are proportionally higher than for middle-class whites.
2. When a child attends school, the family loses the contribution he would have made to their total income had he been working. This amount is proportionally greater for nonwhites than for middle-class whites.
3. The low socioeconomic status nonwhite student receives a poorer quality of education than white middle-class youths.
4. The amount of monetary return in the future will be less than for middle-class whites.

From an economic point of view, a person should invest in education as long as the rate of return is greater than the rate of return from an alternative investment. Because of the higher costs and lower returns in education for nonwhites, they may actually be making a rational economic decision in dropping out of school, rather than doing so just because they are unable to delay gratification. While not suggesting that these economic factors alone explain the dropout rate for nonwhites, the author states that they cannot be overlooked.

In conclusion, the article states that supplemental income alone to help incur the costs of education will not alleviate the dropout rate for low socioeconomic status nonwhites. Rather, the author suggests that an improvement in educational quality for this group would be necessary to make continued education a successful economic venture.

Stefflre, B. Vocational development: Ten propositions in search of a theory. Personnel and Guidance Journal, 1966, 44, 611-616.

This article sets out 10 propositions in an effort to work toward a unifying theory under the general rubric of role theory. The propositions are:

1. An occupation permits an expression of the individual's public personality which is a special instance of differentiation of function.
2. The occupational persona represents the individual's choice among those masks he would like to wear and those that society will permit him to wear.
3. An occupational role may represent avoidance reaction as well as, or instead of, approach reaction.
4. The importance of the work aspect of the public personality---the occupational persona---varies from being psychologically peripheral to being central.
5. The societally limiting forces that determine the occupational persona of any individual vary from the accidental to the essential.
 - a. Unique individual contacts may determine the occupation and so limit what is possible largely through accident.
 - b. The general economic situation may determine what is possible.
 - c. The sociological context may determine the occupational level at which one works.
 - d. The psychological make-up of the individual may lead him to choose certain occupations that permit him to express his uniqueness.
 - e. The philosophical commitment of the individual may determine the meaning of life and work and thereby influence his selection of an occupational persona which he feels appropriately expresses his humanness.
6. The expression of the public personality through an occupation---the selection of an occupational persona---must be made on incomplete information.
7. The stability of the choice of an occupation after additional information about the work role becomes available varies directly with the psychological commitment to the occupation on the part of the chooser.
8. As further information about the self comes to light, it is more

apt to lead to change within the occupation for those who are psychologically committed to the occupation as opposed to change to a different occupation for others.

9. The occupational persona and the self-concept have a symbiotic relationship that moves them toward congruence.
10. The selection of an occupational persona may express any of four relationships between the self and the society.
 - a. The first relationship might be called fitting. In this situation the self is congruent with the self-concept, which in turn is congruent with the occupational persona, which was selected on the basis of an accurate occupational role expectation.
 - b. A second relationship might be called permitting. In this situation the self-concept is not completely congruent with the self. The occupational persona, however, may be congruent with the self-concept as it is and may have been selected with an accurate occupational role expectation.
 - c. A third relationship might be called transforming. In this situation the self-concept is congruent with the self but the individual does not wish to display all of his self-concept in an occupation. The occupational persona, therefore, is not completely congruent with the self-concept, even though it may be based on an accurate occupational role expectation.
 - d. The fourth relationship may be thought of as binding. In this situation the self-concept is congruent with the self and the occupational persona congruent with the self-concept. However, the occupational persona has been selected on the basis of inaccurate occupational role expectations.

The author feels that these ten propositions seem to have some aspects of a theory because they attempt to explain on a differential basis who will do what in a given situation. He suggests the following hypotheses, which may be testable:

1. There will be differences between a person's self-concept and his "self as seen on the job"--that is, his occupational persona.
2. Expressions of dislike (avoidance reactions) may predict vocational development.
3. Crucial variables in vocational development are more apt to be accidental and economic for lower-class than for middle-class, for females than males, for non-western than western workers.
4. Perceptions of role expectations and of the self will change after an occupation is entered.
5. Occupational, as opposed to job, stability will be differentially related to class, sex, and culture.

6. Proposition 10 would call for an examination of relationships among: (a) the self as seen by others; (b) the self-concept; (c) self as seen on the job; and (d) occupational role expectations.

Stroup, A. L. and Robins, L. N. Elementary school predictors of high school dropout among black males. Sociology of Education, 1972, 45, 212-222.

Respondents:

Number: 223

Sex: male

Age: between 30 and 36

Ethnic Background: black

Residence: St. Louis (urban)

Date Data Gathered: 1967

Selection: Students in their early thirties selected from old public school records for follow-up, who were black, St. Louis-born, students in the St. Louis public elementary schools for at least six years, contemporaries (having been born within the five-year period of 1930-1934), and of at least "normal" I.Q. (86 or higher). The selection procedure called for allocating each member of the eligible population to one of eight strata representing all combinations of dichotomized values of the childhood variables: elementary school performance (presence or absence of school problems, as indicated by attendance records showing more than 20 percent absence in five or more school quarters or repeating the same grade on two or more quarters), father's absence or presence, and family socioeconomic status. From each of these strata, an equal number of names was selected.

Objectives: To determine what factors influence the school dropout rate of black male youth. The investigation of factors predicting the number of high school years completed was restricted to pre-high school variables, thus avoiding the confusion between events in high school that might effect the dropout process.

Methodology: Elementary school records provided information about retention, absences, number of home addresses, guardian's name (indicating broken or intact home), and I.Q. scores. Interviews were conducted with each student to determine the actual amount of education he had acquired by age 21 and to acquire information regarding his family situation during the elementary school years. In addition, police records prior to the student's fifteenth birthday were reviewed.

Results and Conclusions: Of the 13 variables explored, 9 depicted correlations at least at the .05 level of significance. The most striking predictors of dropout were school failures and excessive absences in elementary school. Broken homes, mother's level of education, I.Q. scores, and family size were all less predictive ($p < .05$) than the boys' performance in elementary school, frequent school changing, early record of delinquency, early drinking, and the family life style and social status ($p < .05$). In addition, 6 of the 13 variables produced a multiple R of .637 which is significant beyond the .01 level: school, retardation, truancy, early drinking activity, parental social status, and the number of elementary schools attended.

Super, D. E. Vocational theory: Persons, positions, and processes.
The Counseling Psychologist, 1969, 1 (6), 2-9.

This paper by Super is a revision of two of his earlier works which appeared in the Personnel and Guidance Journal, 1961, and the Vocational Guidance Quarterly, 1964. He discusses theories and theoretical issues related to vocational development using one segmented theory (trait factor). In the opinion of Super, when theories are incomplete or inadequate, no theory can be truly comprehensive under such circumstances and the best one can hope for is the development of "segmented" theories. He identifies the major segments available for the construction of an imperfect theory of vocational development, adding that developmental psychology and sociology can provide some of the substance needed for a segmental theory of the stages of career development and progression from one stage to the next. He briefly reviews some of the previous work on career patterns with a discussion of how this fits into more comprehensive theorizing. He also describes his work on vocational maturity which helps to elucidate the developmental process. His last discussion centers on his work on a segmental theory of vocational choice.

Tiedeman, D. V. Decision and vocational development: A paradigm and its implications. Personnel and Guidance Journal, 1961, 40(1), 15-20.

The author presents his model of decision-making which involves these stages: anticipation, exploration, crystallization, choice, specification, induction, transition, and maintenance. He goes on to relate this model to educational and vocational decisions.

Tillery, D., Donovan, D., and Sherman, B. SCOPE: Grade eleven profile 1968 questionnaire selected items. New York: College Entrance Examination Board; Berkeley: University of California, 1969.

Respondents:

Number: 35,414

Sex: male and female

Age: tenth and eleventh grade

Residence: California, Illinois, Massachusetts, North Carolina

Date Data Gathered: 1967 and 1968

Selection: stratified random sample

Objective: To report on information gathered in SCOPE (School to College: Opportunities for Post-Secondary Education).

Methodology: A questionnaire with 108 items was administered on student plans, attitudes, and preferences. Responses were reported showing relationship to sex, aspiration group, and state.

Results and Conclusions: Complete data tables are included with student responses to the questionnaires. It is presented as a source of data for educators.

Tillery, D., Sherman, B., and Donovan, D. Helpfulness of parents, school personnel and peers to students with different educational aspirations. New York: College Entrance Examination Board; University of California: Center for Research and Development in Higher Education, 1968.

Respondents:

Number: 8,065
Sex: male and female
Age: tenth grade
Residence: California
Date Data Gathered: 1967
Selection: stratified random sample

Objective: To study the helpfulness of parents, school personnel, and peers to students with different educational aspirations; more specifically, whether students with different educational aspirations talk to the same people about school problems and how helpful these people are to the students.

Methodology: The study was based on data gathered for the SCOPE project. Students were administered questionnaires which asked about contacts with significant others and about educational aspirations.

Results and Conclusions: More students talked to their mothers about school problems than to fathers, school personnel, or others. School personnel, particularly the counselors, were perceived as most helpful. Students with high educational aspirations had more involvement with parents and school personnel than low aspirants.

Tseng, M. S. and Carter, A. R. Achievement motivation and fear of failure as determinants of vocational choice, vocational aspiration, and perception of vocational prestige. Journal of Counseling Psychology, 1970, 17 (2), 150-156.

Respondents:

Number: 228
Sex: male
Age: 14-18
Residence: West Virginia
Date Data Gathered: 1967
Selection: random

Objectives: The authors wanted to see if there were significant relationships between achievement, motivation, anxiety, occupational aspiration, and vocational choice.

Methodology: The authors examined the relationships of high school boys on two measures---a test of achievement motivation (n Ach. T.A.T., McClelland, 1953) and a Test Anxiety Questionnaire (Mandler and Cowan, 1958)---to scores on the North-Hall Occupational Prestige Scale, Haller's Occupational Aspiration Scale, and expressed occupational choice.

Results and Conclusions: Significant differences were detected between responses of students judged high in achievement motivation, low in test anxiety ("fear of failure") and students rated low in achievement aims, high in test anxiety. Highly confident, high-achievers seem more aware of an occupation's prestige ($p < .01$) and aspire to "higher," more prestigious occupations than do the fearful low achievers ($p < .05$). The authors attribute these differences to personality traits, but as they report no controls for I.Q., age, or socioeconomic status, their results may merely mean that brighter, older, or more affluent students aim higher and fear failure less than do students who are less intelligent, less mature, or financially insecure.

Tuckman, B. W. Personality and satisfaction with occupational choice: Role of environment as a mediator. Psychological Reports, 1968, 23, 543-550.

Respondents:

Number: 74
Sex: male
Age: 24-59
Residence: New Jersey
Date Data Gathered: 1968
Selection: night-school classes

Objectives: The author examined the relationships between responses to three measures: Interpersonal Topical Inventory (ITI)- (Tuckman, 1966), and job environment and job satisfaction questionnaires.

Methodology: The hypothesis under study was that job satisfaction level is a function of the relationship between personality and work environment. The author predicted that: (1) persons rated "concrete-dependent" (orientation to norms and authorities) would reveal a concern for security and structure in rating their actual ideal jobs; persons classed "concrete-independent" (anti-authoritarian orientation) would stress autonomy and self-expression; persons rated "abstract dependent" (orientation toward personal relations) would emphasize work environment characteristics such as social contact and esteem; persons typed "abstract-independent" (information-oriented, non-personal) would stress the importance of sufficient self-expression.

Results and Conclusions: The hypothesis was partially supported for the first two personality types ("dependent" and "independent" concrete types) (3 out of 12 correlation coefficients $p < .05$), but not for the others. "Abstract-dependents" gave high ratings to a number of environmental factors while "abstract-independent" types did not place particular emphasis on any.

Tuckman, H. P. Determinants of college student migration. Southern Economic Journal, 1970, 37(2), 184-189.

The author presents a simple economic model to explain interstate migration of college attendees. The migration model is represented by the following equation: $M' = f(Y, S, P, E)$. M' measures the proportion of students from a state attending college outside the state, Y denotes that state's per capita income, S stands for the coverage price charged by colleges within the state, P shows the number of public colleges in the state and E reflects the average amount of student aid reported by within state colleges. The following formula represents an adjustment made in the out-migration model: $M'' = M' - A$; $A > 0$. A measures involuntary out-migration, M'' estimates voluntary out-migration rate and M' gives the gross out-migration rate.

Results and Conclusions:

Using gross out migration as the dependent variable the results are:

$$\begin{aligned} M' &= 0.584 + 0.0094Y - 0.357P \\ &\quad (3.8) \quad (4.8) \\ &\quad + 0.0165E - 0.007E \\ &\quad (2.7) \quad (.3) \\ R^2 &= .547, S. E. = 7.847 \end{aligned}$$

Using voluntary out migration as the dependent variable, the results are:

$$\begin{aligned} M'' &= 12.826 - 0.0024Y - 0.158P \\ &\quad (1.3) \quad (3.2) \\ &\quad + 0.028S + 0.003E \\ &\quad (7.0) \quad (.1) \\ R^2 &= .642, S. E. = 5.206 \end{aligned}$$

The model clearly indicates that the decision by students to attend college in other states is influenced by the prices of both the in-state and out-of-state colleges.

Tuckman, H. P. High school inputs and their contribution to school performance. The Journal of Human Resources, 1971, 6(4), 490-509.

Respondents:

Number: 1,001
Sex: (not stated)
Age: high school seniors
Residence: United States
Date Data Gathered: 1965
Selection: 1,001 public senior high schools were selected from the 7,700 public, non-public, elementary, and secondary schools that were part of the 1965 Current Population Survey and returned questionnaires to the Census Bureau.

Objectives: To examine the effects of a change in the mix of education inputs on several measures of high school performance

Methodology: Administrators of each school responded to questionnaires about the social and educational composition of the student body along with several performance measures. The percentage of teachers with 10 years or more of teaching experience, the percentage of teachers with Masters' degrees, the percentage of students who are male, the percentage of students with fathers who are white collar workers or college graduates, and the percentage of students who are Negro or Mexican-American are some of the variables which are education inputs. Some of the performance measures which served as dependent variables were: the percentage of original 10th grade students completing high school in 3 years, the percentage of 12th grade students going on to any form of higher education, etc. A linear regression module is used to explain variation.

Results and Conclusions: The results suggest that a significant amount of the variation of the proportion of students completing high school and going on to higher education (59%) can be explained by several (83%) school and nonschool input variables. Also, the results generally support the finding that school inputs explain less of the variation in the sample data than do the student home and background characteristics.

Tuckman, H. P. Local colleges and the demand for higher education: The enrollment including effects of location. The American Journal of Economics and Sociology, 1973, 32(3), 257-268.

This study explores the effects of a reduction in the price of a junior college education, due to the opportunity to live at home, on the enrollments in higher education. Part I provides a framework for computing the savings students obtain by attending a local college. This framework assumes that if a local college is not available in the student's community, he will choose the same type of college at some other location. In Part II, this framework is applied to a cohort of second year students at the Miami Dade Junior College to arrive at savings estimates (\$6 to \$102). Part III distributes these by income class, and Part IV uses the savings estimates to analyze the addition to enrollments resulting from junior colleges. The findings suggest that the presence of a local junior college results in an increase in enrollments in institutions of higher education and an increase in the proportion of college-bound students choosing to attend a junior college (59%).

Tuckman, H. P. and Brosch, G. Changes in personal income and their effect on income share. Southern Economic Journal, 1974, 41(1), 78-86.

This paper tests two hypotheses: that an increase in the personal income share of labor leads to a more equal income distribution than an increase in the share of other personal income components and that changes in labor's share can be used to explain the observed trends in the direction of greater income equality in the post-war census income share data. A regression equation is estimated for three income groupings (upper, middle, and lower fifths). Income share data were taken from the U.S. Census Bureau.

The assertion that increases in the labor share of personal income lead to a growing income share (as measured by the Census Bureau) for the lower income group does not seem to be borne out by the data (regression coefficient = 0.2678). It appears that changes in the proprietor and social income shares had the largest effect on the census series (regressive coefficients = 0.7410 and 1.6052). The findings also suggest that the contribution of a component of a national income is not stable from one period to the next and that structural changes may be taking place within the different categories.

Tyler, R. W. The right student, the right time, and the right place. In K. S. McCaffrey and E. King (Eds.), College/career choice: Right student, right time, right place. American College Testing Program, Monograph 9, 1973, 1-13.

Tyler describes the current educational system as being pre-occupied with grading, classifying, and sorting functions rather than being concerned with helping each student to learn. He contends that the task of schools is no longer to sort out students, but to educate a larger proportion of students who are needed for the jobs in our highly developed society.

Students should have more adequate knowledge of the range of career opportunities and of the institutions that furnish relevant preparation. Often school guidance personnel commonly think primarily of 4-year colleges and universities for post-high school education and neglect technical and service fields. Students also need more information on their strengths and limitations, interests and goals. They then should have more assistance in bringing together information about themselves and various opportunities.

Educational institutions should re-think their functions and redesign their curriculum to meet their goals. Staff should adjust their doctrines and practices to meet the needs of the students who are being admitted. Also, the system should provide more opportunities for young people to move gradually into the activities and responsibilities of adults, rather than isolating them from the rest of society.

Vander Well, A. R. Influence of financial need on the vocational development of college students. American College Testing Program, ACT Research Report, 1970, 36.

Respondents:

Number: 291

Sex: male and female

Age: college sophomore

Residence: midwest and southwest

Date Data Gathered: 1969-1970

Selection: drawn from four state-supported institutions

Objectives: The hypotheses were:

Students with financial need form earlier crystallized occupational choices than those without financial need.

Students with financial need persist with their early occupational choice commitment, whereas those without need tend to alter their objectives and later specify more crystallized choices.

Students with financial need narrow their objectives and thus limit their participation in other curricular and extracurricular areas, whereas those without need participate more actively and broadly.

Students with financial need perceive their educational experience and their relationship with the institution less favorably than those without financial need.

Methodology: There were these three groups of students: Financial Aid Group who had applied for and received aid; the Unmet Need Group who applied for aid but did not receive sufficient assistance to meet their need; and the Nonapplicant Group who did not apply for financial aid. A questionnaire was mailed to the students. Response rates at the institutions ranged from 15.6 to 36.7.

Results and Conclusions: The first hypothesis was supported, the second hypothesis was partially supported, and the last two were not supported.

The students with full financial aid tended to have a greater crystallized choice of their educational major and vocational goal than was true of students in the other two groups ($p < .025$). Differences regarding college goal preferences among research groups were not significant. All groups showed a strong preference toward vocationally oriented goals. The hypothesis that groups with financial need would prefer vocationally oriented goals more than those without need would prefer academic goals was not supported. Statistical analyses failed to support the theoretical expectation that individuals with financial need participate less in extracurricular activities and have poorer college attitudes.

Vondracek, S. I. and Kirchner, E. P. Vocational development in early childhood: An examination of young children's expressions of vocational aspirations. Journal of Vocational Behavior, 1974, 5 (2), 251-260.

Respondents:

Number: 282

Sex: male and female

Age: 3 - 6

Residence: Pennsylvania

Date Data Gathered: (not stated)

Selection: A random sample stratified on the basis of age, sex, and race was selected from 51 day care centers drawn from five geographical regions.

Objectives: To investigate expressions of vocational aspirations of preschool children and to identify possible differences in this vocational behavior as a function of age, sex, and race.

Methodology: The children were asked what they would like to be when they grow up.

Results and Conclusions: There was a significant increase with age in number of specific occupations named ($p < .0001$). No difference was found between girls and boys in terms of rate of development. However, the girl's choices fell primarily in the categories of nurse and teacher, while there was a greater dispersion of aspirations for males. Race comparisons showed that urban blacks gave fewer responses than urban whites in the adult category ($p = .06$) and that whites gave significantly more specific occupation responses ($p < .05$).

Werts, C. E. Social class and initial career choice of college freshmen. Sociology of Education, 1966, 39, 74-85.

Respondents:

Number: 30,448

Sex: male and female

Age: college freshmen and sophomores

Residence: 248 colleges

Date Data Gathered: 1961, 1962

Selection: In 1961 the freshmen at 248 colleges and universities were given a brief questionnaire. A sample of these were mailed questionnaires a year later and 55% were returned.

Objective: To explore the relationship of socioeconomic status to career preferences.

Methodology: Information was gathered on father's occupation and student's probable career. Students were divided into four socioeconomic status groups for the analysis. A career was overchosen if more students selected it than there were fathers in this occupation.

Results and Conclusions: The lowest socioeconomic status group overchose these occupations at a .05 level of significance:

<u>Men</u>	<u>Women</u>
engineer	teacher
teacher	nurse
chemist	lab technician
accountant	
clergyman	
farmer	

These occupations were overchosen by one or both of the middle socioeconomic status groups:

<u>Men</u>	<u>Women</u>
physicist	journalist
dentist	speech therapist
mathematician	
architect	
businessman	
foreign service	

The high socioeconomic status group overchose:

<u>Men</u>	<u>Women</u>
physician	social worker
lawyer	physician
college professor	foreign service
	psychologist
	housewife

There was a significant degree of overchoice whenever the son's career choice matched the father's occupation.

Werts, C. E. Paternal influence on career choice. Journal of Counseling Psychology, 1968, 15 (1), 48-52.

Respondents:

Number: 76,015

Sex: male

Age: 18

Date Data Gathered: 1961

Selection: freshmen at 246 colleges

Objectives: Comparisons of father's occupation, son's preferred occupation at the beginning of his freshman year in college, and son's Strong Vocational Interest Blank (SVIB) response profile were undertaken in order to detect occupational "inheritance" patterns.

Methodology: Strong Vocational Interest Blank; questionnaires.

Results and Conclusions: Three broad types of occupations appeared to be passed from father to son. Two types corresponded closely to the SVIB physical sciences and social sciences groups ($p < .05$); a third included only medical occupations ($p < .05$). The author cautions against "interpretive pitfalls," among which are the problems of obtaining a reliable report of father's occupation and son's choice and the lack of information regarding the son's actual choice of a career after college.

Wheeler, C. L. and Carnes, E. F. Relationships among self-concepts, ideal self-concepts, and stereotypes of probable and ideal vocational choices. Journal of Counseling Psychology, 1968, 15 (6), 530-535.

Respondents:

Number: 134

Sex: male

Age: 19

Residence: Fresno, California

Selection: health and psychology classes

Date Data Gathered: 1968

Objectives: Super's self-concept implementation theory suggests that people choose careers in which they can "implement a self-concept." Freshmen and sophomores were asked to rate: (1) how they see themselves (real self); (2) how they would like to see themselves (ideal self); (3) their view of people in the occupation they would most prefer to enter (ideal occupation); and (4) their view of people in the occupation they would probably enter (probable occupation). It was hypothesized that: (1) A student's rating description of his real self (self-concept) would be more similar to his description of people in the occupation he was likely to enter (probable occupation) than to his description of people in the occupation he would most prefer to enter (ideal occupation). This idea was based on the assumption that a person uses work as a means of attaining a self-ideal. (2) Students will rate their ideal job in terms that are more similar to words they use to describe the kind of person they would like to be (ideal self) than to terms they use to rate their most probable job.

Methodology: All ratings were made on a 180-item, 5-point rating scale (Modified Descriptive Checklist--Blocher, 1959) in two sessions. No controls for sequential order are reported.

Results and Conclusions: Both hypotheses were supported when tests of differences between means were made ($p < .02$, $p < .01$); however, the difference between ideal self and probable occupation means was less than had been expected. The data did not support the theory that the individual uses his vocational choice to become the kind of person he would like to be. Ideal self, ideal occupation and probable occupation were rated more similar to each other than to current self-opinion. The authors interpret these results as evidence that people use their probable job choices as vehicles for self-actualization. It is possible, however, that the outcomes reflect a difference in the way the subjects value their current status as students versus future work roles.

Whitney, D. R. Predicting from expressed vocational choice: A review. Personnel and Guidance Journal, 1969, 48 (4), 279-285.

Information on the predictive validity of expressed vocational choice was gathered in a review of 11 large-sample longitudinal studies ($N > 3,000$). In this paper "expressed choice" designates a person's responses to questions such as, "What job do you plan to hold five years from now?" or "What do you want to do?" These results indicate that, in general, a person's expressed choice predicts his future employment about as well as do interest inventories or combinations of personality and background characteristics. Expressed vocational and educational field choices are moderately stable over one to five-year periods during and after college (Strong, 1927, 1939, $r .69$ -- freshman choice and occupation engaged in 19 years later). Difficulties and shortcomings in past research are discussed, along with recommendations for future research on the predictive validity of expressed choice. Implications of these results for the practicing counselor are also considered.

Ziegler, D. J. Self-concept, occupational member concept, and occupational interest area relationships in male college students. Journal of Counseling Psychology, 1970, 17 (2), 133-136.

Respondents:

Number: 428
Sex: male
Age: 19 through 21
Residence: Philadelphia, Pennsylvania
Date Data Gathered: 1969
Selection: college classes

Objectives: Noting that research supporting Super's self-concept implementation theory had been based on small and limited samples, the author proposed to test the theory's vocational preference assumptions with a larger and more heterogeneous student sample. Two hypotheses were investigated: (1) A student's description of himself on an adjective checklist will be more like his description of the kind of person found in his most preferred occupational interest area than like his description of the kind of person found in his least-liked occupation. That is, if a student, choosing from a list of occupations, were to select the occupation of surgeon as the career he most wanted to enter and that of farmer as his least favorite choice, he should tend to view himself as being more like the typical surgeon than like the average farmer. (2) Certain descriptive adjectives will tend to characterize each group. Students planning careers in medicine, for example, will rate certain words as applicable to themselves that students planning careers in music, conservation, or business management will be less likely to apply to themselves.

Methodology: Self-concept and most and least preferred occupational concepts were rated on Gough and Heilbrun's (1965) Adjective Check List (ACL). Students completed the form three different times with order in which concepts were rated varying across subjects.

Results and Conclusions: Ratings supported both hypotheses. Students saw themselves as being more like people in careers they wanted to enter than like people in jobs they disliked ($p < .005$). There was also some evidence that people with different interests applied different adjectives to themselves. Medical science people tended to rate themselves as "alert," "cautious," and "kind," while artists rated themselves "adventurous," "artistic," and "imaginative." This was interpreted as support for Super's self-concept theory.

Ziegler, D. J. Attribution of personality characteristics to members of occupational groups. Psychological Reports, 1972, 31, 68.

Respondents:

Number: 428

Sex: male

Age: 19-21

Residence: Philadelphia, Pennsylvania

Date Data Gathered: 1969

Selection: college classes

Objectives: Reasoning that "needs, values, and other personal factors profoundly influence perception," the author hypothesized that people tend to ascribe more favorable personality characteristics (and fewer unfavorable ones) to people in jobs they like than they will apply to individuals in jobs they dislike.

Methodology: Students completed Gough and Heilbrun's (1965) Adjective Check List (ACL) in order to describe: (1) the typical person in the career they liked most, and then (2) the typical person in the job they most disliked.

Results and Conclusions: When ratings were scored on the favorability and unfavorability scales of Gough and Heilbrun (1965), a χ^2 value obtained from the data was significant ($p < .01$). It was concluded that male college students tend to see people in careers they like as having more favorable personality characteristics than people in careers they dislike.

Ziegler, D. J. Distinctive self and occupational member concepts in different occupational preference groups. Journal of Vocational Behavior, 1973, 3, 53-60

Respondents:

Number: 428

Sex: male

Age: 19-21

Residence: Philadelphia, Pennsylvania

Date Data Gathered: 1969

Selection: college classes

Objectives: Super's self-concept theory provided a basis for two hypotheses: (1) students who express a given vocational preference will tend to describe the typical person in their chosen vocation with terms that are different from terms they apply to other occupations, and these terms will vary with the particular area of vocational interest; (2) students will tend to apply certain descriptive words to people in their chosen occupation than they apply to themselves.

Methodology: Self and vocational concepts were assessed with Gough and Heilbrun's (1965) Adjective Check List (ACL). Lists were compiled for each occupational preference group of adjectives used by 75% or more of that group, but not by 75% or more subjects in more than two other preference groups.

Results and Conclusions: Word lists indicated that 14 occupational preference groups differed somewhat in adjectives chosen, providing support for hypothesis one. Applying similar criteria to words checked as both self-descriptive and descriptive of preferred occupation members, a list of adjectives was compiled in support of the second hypothesis. No statistical analyses of these data were reported.

Zytowski, D. G. Toward a theory of career development for women.
Personnel and Guidance Journal, 1969, 47 (7), 660-664.

The following nine postulates are presented in an attempt to characterize the distinctive differences in the work life of men and women, the developmental stages unique to women, their patterns of vocational participation, and the determinants of the patterns.

1. The modal life role for women is described as that of the homemaker.
2. The nature of the woman's role is not static. It will ultimately bear no distinction from that of men.
3. The life role of women is orderly and developmental, and may be divided into sequences according to the pre-eminent task in each.
4. Vocational and homemaker participation are largely mutually exclusive. Vocational participation constitutes departure from the homemaker role.
5. Three aspects of vocational participation are sufficient to distinguish patterns of vocational participation: age or ages of entry; span of participation; and degree of participation.
6. The degree of vocational participation represented by a given occupation is defined as the proportion of men to the total workers employed in the performance of that job.
7. Women's vocational patterns may be distinguished in terms of three levels, derived from the combination of entry age(s), span, and degree of participation, forming an ordinal scale.
8. Women's preference for a pattern of vocational participation is an internal event, and is accounted for by motivational factors.
9. The pattern of vocational participation is determined jointly by preference (representing motivation) and by external, situational and environmental, and internal, (such as ability) factors.

The author concludes that each of the postulates needs additional evidence and that if valid, there is a need for a special theory of vocational development for women.

Zytowski, D. G. The influence of psychological factors upon vocational development. Guidance Monograph Series, 1970, Series IV.

This book reviews and discusses literature on psychological factors and their effect on vocational development and choice. Discussed are the relationship of abilities to occupational performance and the influence of interests, values, and personality on vocational development. The author concludes that although research has demonstrated many associations between various psychological factors and some types of vocational behavior, many factors are involved in the vocational development of any individual.

Barnett, R. C., & Baruch, G. Occupational and educational aspirations and expectations: A review of empirical literature. Radcliffe Institute and Worcester Foundation for Experimental Biology, 1974 (mimeographed).

In this paper, the authors reviewed the empirical literature on occupational and educational aspirations and expectations of subjects from pre-school through grade 12. A few selected studies of older subjects are included.

In their discussion of methodological difficulties, the authors found major problems existed with respect to defining terms, variations in phrasing of items and coding of answers, and reliability of data. In the theoretical framework of studies, social and cultural factors, especially those affecting women, were often ignored, thus reducing the generalizability of research findings. The studies revealed that aspirations tended to exceed expectations, especially in lower socioeconomic status subjects, but these correlations increased with age and were highly significant.

The effects of race, sex, and social class were discussed separately for three grade levels: pre-school through grade 9, grades 9-12, and post-high school subjects. Effects of sex were apparent early and revolved around the consistent choice of teacher or nurse by about two-thirds of the girls in most of the samples studied. Thus the range of choice of girls was about half that of boys. With increasing age, the level of occupational aspirations tended to rise in males while remaining stable in females. The effects of race are negligible until about age 12; findings are inconsistent for subjects in the high school years. Social class differences were found to become significant by approximately the tenth grade, which is the point at which differing track curricula become available. In general, socioeconomic status corresponded significantly and positively with all four outcome variables. The interactions of race, sex, and social class were analyzed in several studies. A major finding was the high aspirations, expectations (and often actual achievement) of black females. The size of the community of origin was found to be positively related to aspirations. Other influences (occupational stereotypes, occupational values, perceptions of occupational prestige, vocational maturity, personality variables, parental influence) were treated briefly.

It was recommended that future research should examine the effects of intervention strategies and should also take into account in the theoretical background effects of changing lifestyles of both men and women. Major recommended modes of intervention for counselors included working with parents as well as students and making more varied role models available. The final section of the paper is devoted to an annotated bibliography of 118 empirical studies.

Featherman, D. L. Farm, rural and urban backgrounds of rearing and socioeconomic career achievements in metropolitan stratification systems. Paper presented at the Annual Meeting of the Rural Sociological Society, Washington, D.C., 1970.

Respondents:

Number: 715

Sex: male

Age: adult

Residence: rural and urban

Ethnic background: white

Date Data Gathered: 1957 and 1967

Selection: Couples having two children and residing in seven of the largest standard metropolitan areas in 1957 who originally participated in the Princeton Fertility Study. In a secondary analysis, only a subset of this stratified sample was used; those males who remained eligible throughout the duration of the restudy period (1957-1967) and who returned a questionnaire in supplement to the original interview in 1957 were included.

Objective: To determine the extent to which rearing in a farm or rural environment as opposed to an urban residential context influences educational attainment and subsequent socioeconomic achievement. Also of concern is the degree to which the social destination (including social mobility) of a son is contingent upon the social status of his family.

Methodology: A questionnaire supplement and an interview conducted with the wife in 1957 were both used to obtain data. Achievement was assessed by the number of years of schooling, prestige of occupational title (measured by the 1947 NORC scale), and dollars of salaries and wages of the husband. An individual's background was evaluated in terms of his parents occupational prestige (measure by the NORC scale), the number of siblings in the person's family, and the residential context during rearing (self-reported).

Results and Conclusions: Males with farm or rural contexts seem to incur an educational handicap to their occupational and economic careers which men of urban backgrounds do not seem to suffer ($p < .05$). The fewer years of education attained by rural males is at least partially explained by the relatively larger sizes of their families ($p < .05$). Also, it was discovered that when the father's occupational status, size of family, and years of schooling completed were controlled statistically, the residential variable had no direct net effect on successive occupational and income career achievements ($p \neq .05$). Therefore, the author concludes that differential education appears to explain the residential background variation in occupational achievement. Educational completion, in turn, seems to hinge on both paternal occupation and the size of the family. In addition, those with both lower paternal status, greater numbers of siblings, and farm or rural rearing suffer handicaps in the educational component of occupational achievement.

Folson, Jr., C. The validity of Holland's theory of vocational choice.
Unpublished doctoral dissertation, University of Maine, 1971. No. 72-5626.

Respondents:

Number: 366
Sex: male and female
Age: 14-18
Residence: Maine
Date Data Gathered: 1970

Objectives: The author investigated two general questions: (1) Are the personal characteristics Holland ascribes to his six personality types accurate? (2) Do vocational interest inventories and personality inventories provide similar information about individuals?

Methodology: Compared high school students' scores on the eleven scales of Holland's Vocational Preference Inventory (VPI) with their scores on the eighteen scales of the California Psychological Inventory (CPI). Further comparisons with mental ability and reading scores were also made.

Results and Conclusions: Results suggested that Holland's theory may not be applicable to secondary schools in which the majority of students are not National Merit Finalists. The aspects of Holland's theory that were supported in the more typical high school sample were: (1) "Intellectual" and "Artistic" types tended to have higher intelligence scores than "Realistic" types. (Fewer low IQ males were categorized as Intellectual and Artistic than were higher IQ (above 100) males; more lower IQ Ss were categorized Realistic than were higher IQ Ss); (2) The majority of females fell within Social and Artistic categories; (3) Intellectual types could be differentiated from Realistic and Conventional types on the two CPI scales that measured the importance of intellectual achievements; (4) The CPI showed Artistic types to be more "Flexible" than Realistic types, as well as more "Feminine" than the latter.

Inconsistent with Holland's theory were the findings that (1) Artistic types received higher CPI "Dominance" scores than did Social and Enterprising types. (The artists appeared more "aggressive, persistent, and leader-like" than did, say, the entrepreneurs or businessmen); (2) Linear correlation analyses showed only moderate relationships between VPI and CPI scales. A majority of coefficients were of a magnitude of .15 or less, and only a few exceeded .30.

The author suggests that results contradicting Holland's theory may be partly explained by: (1) the small numbers of cases within some VPI categories; (2) Holland's theory being too generally stated to permit predictions that accurately discriminate between characteristics of the types; (3) sex, mental abilities, and reading skills may interact in ways that influence the correlations obtained between VPI type and personality in a broad student sample. The author concludes that Holland's theory may not be very helpful to most school counselors.

Fulmer, J. L. Conclusions and recommendations from "Careers for youth survey--Georgia, 1971-1974," for the State Department of Education of Georgia (mimeographed).

The author of this paper is concerned with what he sees as the lack of occupational training of high school students in the state of Georgia. He contends that high school youth are totally lost in their thinking about a life's future and that college youth are faring little better in finding what they really want to do. The author suggests a revamping of the whole approach to career education, beginning with parents whom he feels must show an intense interest in the exploratory experiences of the child from the very early years. Next there must be community involvement of at least three levels (local, county, and state) in the development of schools and programs to enable youth to study, learn and apply this learning to specific work situations. He describes the need for involvement of the business community and recommends close cooperation between education and job placement experts. In sequence, the author lists six steps (from pre-school to 11th grade) based on his own concept of career education on how to make career education more effective. The key, he feels, lies in the training students receive in grades 1-4 in gaining their interest in the work world.

Sorensen, A. B. A model for occupational careers. Paper presented at the annual meeting of the American Sociological Association, New Orleans, August, 1972.

Respondents:

Number: 973

Sex: male

Age: 30-39

Location: Johns Hopkins University

Date Data Gathered: 1968

Selection: A sample of all males ages 30-39 in 1968 residing in households in U. S.

Objective: To present an algebraic model for occupational careers based on life history studies dealing with occupational, educational, familial, and residential experiences from age 14 to the time of the interview.

Methodology: Life history data (initiated by Coleman & Rossi, Johns Hopkins University) were gathered and analyzed through interviews dealing with information from age 14(entrance into labor force) to the time of the interview (30-39 years of age).

Results and Conclusions: The outcome was to explain via a model how the occupational changes that occur during an individual's lifetime were related to prestige, income, and personal skills and abilities (resources). Next, an age variable was introduced. The resulting parameter of age was interpreted to measure the degree to which occupational structure provided opportunities for gains in occupational achievement, given unchanged resources of the individual. On the individual level, the number of job changes was seen as being reflected in the amount of control individuals had in these changes. The increment in return on resources due to job changes was also argued to be determined by structural characteristics. The authors interpreted the correlation of the parameters of employment of the sample with canonical correlations of the amount of control over job shifts ($r' = .67$, no significance level stated) as substantiating their assumptions.

Tyler, L. E. Personal views of possibilities in three cultures.
Paper presented at the American Psychological Convention,
San Francisco, September 1, 1968.

Respondents:

Number: 144
Sex: male and female
Age: 14 and 15 year olds
Location: North Bend, Oregon; Enkhuizen, Netherlands, and
Palwal, India
Date Data Gathered: could not be determined
Selection: Three samples of adolescents, each containing 24 males
and 24 females, from comparable communities in three
countries--the United States, the Netherlands, and
India.

Objective: To present a theoretical model for the various cognitive
structures individuals employ in making major life choices, e.g.
leisure time activities and occupational choices; and to determine
how a person chooses what he will become. A coordinated series of
exploratory studies were conducted in three countries for the pur-
pose of development and evaluation of the model.

Methodology: A free listing technique was used to assess the
individual's knowledge of occupations and free time activities.
Once the list was completed, the person was required to check
those occupations and free time activities that seemed like
possible events in which he might engage. The choice pattern
procedure required the person to sort cards listing occupations
and free time activities, select those he liked, and explain what
the latter had in common (designed to measure the conceptual
variables).

Results and Conclusions: The model presented is represented by
three concentric squares. The outermost square represents the total
knowledge about a domain, the second what is deemed possible, and
the inner square what is actually chosen.

There were significant differences between nationalities for both
sexes concerning both choice domains (occupations and free time
activities) when given the opportunity to list them freely, which
was interpreted as an assessment of the total knowledge category
($p < .05$). The Indian group was lowest in both categories; the
Dutch group knew the most occupations and the Americans the most
free time activities.

The three nationalities did not differ significantly in the number
of occupations they saw as possible for themselves. However, for
the free time variable, the author reported Americans to be sig-
nificantly high and Indians significantly low (no levels of
significance given).

The conclusion reached by the author regarding differences among groups in reasons for categorizing occupations was that perhaps the degree of environmental or situational structure is inversely related to the amount of cognitive structuring individuals do.

When the sizes of the two choice domains--occupations and free time activities--were correlated for nationalities and sex--it was found that boys' lists were more extensive (representing knowledge) than girls for both choice domains (no significance levels reported). Also the correlations between "known" occupations and free time activities, and between "possible" occupations and free time activities were significant ($p < .05$) for all but three of the twelve subgroups.

The author concludes that for occupations there seems to be no evidence of a relationship between the number listed and the number checked. However, it appears that for free time activities, the more kinds of recreational pursuits a person is familiar with, the greater number he will pursue.

APPENDIX D
IDENTIFIED CAREER RESEARCHERS

Alexander Astin, ACE, UCLA
Helen Astin, UCLA Graduate School of Education, Los Angeles
Rhoda Barauch, Harvard College, Cambridge
Ralph Berdie, University of Minnesota, Minneapolis
Glenn Boerrigter, USOE
David P. Campbell, Center for Creative Leadership, Greensboro, N.C.
Bill Clemans, re National Merit Scholarship Program, AIR, Palo Alto
Bill Cooley, LkDC, Pittsburgh
Bertha Corey, Army Research Institute, Maryland
Arthur G. Cosby, Department of Rural Sociology, Texas A&M, College Station
John O. Crites, University of Maryland, College Park
Evans Curry, Center for Vocational Education, Ohio State University, Columbus
James A. Davis, NORC, Chicago
Arthur A. Dole, University of Pennsylvania, Philadelphia
Bruce Eckland, Department of Sociology, University of North Carolina, Chapel Hill
Charles Grigg, Institute of Social Research, Florida State University, Tallahassee
Daniel Gottlieb, Rutgers, New Jersey
Warren Gribbons, University of Massachusetts, Amherst
Tom Hilton, ETS, Princeton
Howard Hjelm, BOAE, USOE
John Holland, Center for Social Study of Schools, Johns Hopkins University
Ken Hoyt, BOAE, USOE
Eugene Lee, Emory University, Atlanta
Edward McDill, Department of Social Relations, Johns Hopkins University
Frank Minor, IBM Corporation, Germany
Eileen Morley, David Moment, Lew Ward, Abraham Zeleznik, Harvard Business School
Samuel Osipow, Ohio State University, Columbus
John Peatling, Union College, Schenectady
Dale Prediger, ACT Program, Iowa City
Bill Sewell, University of Wisconsin
Brandon Smith, Minnesota State Division of Vocational and Technical Education
Donald Super, Columbia University, New York City
Lloyd Temme, Bureau of Social Science Research, Washington
Dale Tillery, University of California, Berkeley
Frank Wellman, University of Missouri, Columbia
Dael Wolfle, University of Washington, Seattle

APPENDIX E
IDENTIFIED CAREER RESEARCH PROGRAMS/INSTITUTIONS*

American College Testing Program, Iowa City (Career Development Program,
Career Planning Program)

American Council on Education, Washington, D.C. (Cooperative Institutional
Research Program)

American Institutes for Research, Palo Alto, (Project TALENT)

Anacomp, Inc. (Indiana Vocational Education Study)

B'nai B'rith Vocational Services, Washington, D.C.

Center for Studies in Vocational and Technical Education, University of
Wisconsin, Madison

Center for Research and Development in Higher Education, Berkeley

Center for Vocational Education, Ohio State University, Columbus

College Entrance Examination Board, Berkeley (SCOPE)

Educational Testing Service, Princeton (Study of Academic Growth)

Higher Education Research Institute, Los Angeles

Human Resource Research Organization (HUMRRO), Alexandria

Human Resources Research Project, Ohio State University, Columbus

Indiana Vocational Education Study, Indianapolis

Institute for Social Research, University of Michigan, Ann Arbor

National Center for Educational Statistics (NCES), Washington, D.C. (National
Longitudinal Study)

National Computer Systems, Minneapolis (Specialty Oriented Student Research
Program)

National Merit Scholarship Program, Evanston

Oakland Unified School District, Oakland

United States Office of Education, Washington, D.C. (Vocational Research
Coordinating Units--state level)

*Applicable program at the institution is in parentheses following the
institution and location.

APPENDIX F
IDENTIFIED DATA ARCHIVES

Belgian Archives for the Social Sciences, Belgium
Bureau of Applied Social Science Research, New York
Bureau of Economic Research, Rutgers University, New Brunswick
Bureau of Social Science Research, Washington, D.C.
Canadian Bureau of Statistics, Canada
Center for Quantitative Studies in Social Science, University of Washington,
Seattle
Center for Scientific Research, France
Central Statistical Office, Finland
Computing Center, Northwestern University, Evanston
Data and Computation Center, University of Wisconsin, Madison
Indian Statistical Institute, India
Institute for Behavioral Research, Canada
International Data Library and Reference Service, Berkeley
International Development Research Center, University of Indiana, Bloomington
Inter-University Consortium for Political Research, University of Michigan,
Ann Arbor
Latin American Data Bank, University of Florida, Gainesville
Lou Harris Political Data Center, Institute for Research in Social Science,
Chapel Hill
National Central Bureau of Statistics, Sweden
National Institute for Personnel Research, South Africa
New York State Department of Education, Albany
Roper Public Opinion Center, Amherst College, Williamstown, Massachusetts
Service for Scientific Information Exchange, France
Social Science Data and Program Library, University of Wisconsin, Madison
Social Science Information Utilization Laboratory, University of Pittsburgh,
Pittsburgh
Social Science Users Service, Princeton University, Princeton
Social Sciences Data Center, University of Connecticut, Storrs
Social Sciences Research Council, Canada
Social Sciences Research Council, England
Social Security Administration, Baltimore
Survey Research Center, University of Michigan, Ann Arbor
Survey Research Office, University of Hawaii, Honolulu
United States Census Bureau, Data Use and Access Laboratory, Arlington

APPENDIX G

PROCEDURES FOR CODING DATA SETS FOR CAREERS RESEARCH DATA SET INDEX

The general principle for this operation was to write down on a standard form a number of discrete bits of information about each data set as information was received and it was accepted for inclusion in the Index. This information was checked, then keypunched onto a terminal for remote entry into the SPIRES system at Stanford. (See Appendix G.) An attempt was made to get each bit of information or a note to the effect that it was missing.

A "data set" was defined as a set of data (test scores, biographical information, follow-up information, etc.) on a relatively homogeneous group (cohort) of individual students or adults who were originally tested (interviewed, etc.) at the same time. On-going research programs may have multiple data sets. For example, the Cooperative Institutional Research Program of the American Council on Education has eight longitudinal studies of college freshman classes (e.g., the class of 1967, which was tested upon entering college then followed up in 1971); each of these longitudinal studies represents one data set and each should be referenced in the Index.

1. Name of data set. Record the name as accurately as possible. If the set is part of a larger study, record that first, then the name of the particular data set. For example, for the set mentioned previously, you would write "American Council on Education, Cooperative Institutional Research Program, 1971 Follow Up Study of Entering Freshman Class of 1967."
2. Location of data set. Record the address of the organization where the data currently reside. For example, for ACE/CIRP, "Division of Educational Statistics, Office of Administrative Affairs and Educational Statistics, American Council on Education, One Dupont Circle, Washington, D.C. 20036." Try to select the location closest to the original source if the data reside in multiple locations. Be sure the address is complete.
3. Name and title of current contact person. Record this from our latest correspondence. This should be the person who is in charge of access to the data, not the responsible investigator of the research project (if the two are different). For example, for ACE/CIRP, "Ms. Jeannie T. Royer, Assistant to the Division Director." The address of this person should be listed in the item above.

4. Phone number of contact person/organization. Record the phone number of the contact person, if we have it, e.g. (202) 833-4752. If we don't, record that of the source organization, if we have it; indicate "source person" or "source organization." If we have neither, try to get at least the organization listing (source person if possible) through Directory Assistance. If you can't, record this fact.
5. Responsible Investigator(s). Record the name or names of the person (or persons) who has (have) exercised primary responsibility for the research program which generated the data set. This would be the person listed as author (often listed first if there are multiple authors) of final reports, journal articles, etc. If the source person and the RI are the same, record "Same as source person." If the RI is (are) unknown, record this fact. In the case of ACE/CIRP, the RI is "Dr. Alexander Astin, Graduate School of Education, University of California at Los Angeles, Los Angeles, California 90024." Be sure to include address if we have it. You may list multiple persons.
6. Publications available. If we have in our file a list of available research publications derived from the data set, indicate the number. If you can find none listed, leave blank.
7. Access category. A code number which indicates the accessibility of the data. Code as follows:
 1. Data reside in archival form with adequate documentation, available on request from contact person/institution upon payment of fees and compliance with normal confidentiality requirements.
 2. Data reside in archival form with adequate documentation, available on request from contact person/institution, upon payment of fees and compliance with normal confidentiality requirements, with restrictions on secondary distribution, and/or analysis.
 3. Data reside in archival form with adequate documentation, but with restricted access, requiring negotiations with contact person/institution or original source.
 4. Data reside in archival form with minimal or no documentation, available on request from contact person/institution upon payment of fees and compliance with normal confidentiality requirements.

5. Data with documentation do not reside in an archive but are available from contact person/institution upon payment of fees and compliance with normal confidentiality requirements.
 6. Data with documentation do not reside in an archive, and have restricted access, requiring negotiations with contact person/institution or original source.
 7. Data with minimal or no documentation do not reside in an archive, but are available on request from contact person/institution upon payment of fees.
 8. Data with minimal or no documentation do not reside in an archive and have restricted access, requiring negotiations with contact person/institution or original source.
 9. Access category is unknown.
8. Characteristics of sample studied. In this section, we are concerned with the original characteristics of the people from whom the data have been collected.
- A. Number in sample and sampling units. Record the number of cases and the type(s) of sampling unit(s). For example, for the ACE/CIRP data set above, you would record "24,140 students."
 - B. Country and region. Record country of residence. If within the USA, also record region of the country, if appropriate, or "nationwide sample." If region is not indicated, record this fact.
 - C. Rural/Urban. Record one or the other if the population is identified by these categories; otherwise, record "unselected."
 - D. Educational or age level. Record grade level if the population is composed of students; record age level if the population is out of school. If the population is mixed, indicate the range of grade/age levels. If the students are in vocational training programs, indicate the name(s) of the programs. If all are students of one school or university, record its name.
 - E. Gender. Record "male," "female," or "unselected by sex."
 - F. Race. If within the USA, record "all white," "all black," "all Chicano," "all Asian American," "unselected by race" or "not indicated" as appropriate.
 - G. Religion. If all participants are of one particular religion, record it; otherwise, record "unselected by religion," or "not indicated."

- H. Longitudinal. If the study has multiple data collection points on the group or cohort, it is longitudinal. In this case, record "yes." Otherwise, record "no."
- I. Other. If there is any other variable that characterizes the population, such as "handicapped," "bilingual," etc., record it here. If the sample is scientifically drawn so as to be representative of some broader universe, indicate this here.
9. Abstract. If there is a one- or two-page abstract of the study from which the data set is derived, attach it. If not, write a maximum of 100 words describing the study (what is its focus, how was the sample selected from the population studied; what did they find, if anything?).
10. Condition of the data. In this section, we are concerned with the characteristics of the data set itself.
- A. Format. Indicate whether the data are on punched cards, computer tape, etc. If on tape, indicate available configurations.
 - B. Questionnaire. Indicate whether or not a copy (or copies) of the questionnaire(s), interview form(s), etc. used in gathering the data is (are) available. If unsure, leave blank.
 - C. Codebook. Indicate whether or not a copy of the codebook which explains how the data are arranged on the tape, cards, etc. is available.
 - D. Stated policy for public use. Indicate whether or not there is an established written policy for public use/access or acquisition of the data set. If so, characterize it in one or two words, e.g., "confidentiality," "no secondary distribution," etc.
 - E. Fees. If there is a stated cost for acquisition of the file, indicate it (in U.S. dollars). If this is an estimate, indicate "estimate." If fee negotiations are required, indicate this.
11. Variables. Record any of the following which seem to apply to the data collected by the study.
- A. Influencers

- Personal characteristics - Skills or performance - Attitudes and values - Needs - Personality characteristics	- Experiences and associated positive or negative effect - Activities and success or failure (degree of) - Social environment - Economic environment
---	---
 - B. Decisions

- Educational - Training	- Selection of activities or experiences - Job selection
---	---

APPENDIX H

PROCEDURES FOR USING THE CAREERS RESEARCH DATA SET INDEX

Donald H. McLaughlin

The purpose of the Careers Research Data Set Index (CRDSI) is to provide an easy-to-use channel for accessing information gathered from many sources on patterns of individual career decision making. The CRDSI contains information not only on the contents of various data files but also information on the methods of using the data (e.g., telephone number of the relevant contact person). The files included in the CRDSI are indexed by: types of career decisions recorded, influencers of career decisions measured, characteristics of the population, date of initial data collection, sample size, location and accessibility of the data, and words in the name of the data file.

The CRDSI is maintained as an on-line system at the Stanford University Computer Center by the American Institutes for Research, as an application of the Stanford Public Information Retrieval System (SPIRES). Using this system, a researcher can determine the availability of data files with any combination of index terms (e.g., all files of data collected after 1965, in which the influences of attitudes and values on job selection are measured). The data files referred to by entries in the CRDSI are limited to those files that are in machine-readable form (e.g., cards or tape) and that have been evaluated as significant contributions to the pool of information on career decision making. In June, 1975 there were 95 files listed in the CRDSI, with an average sample size, per file, of over 5,000 individuals.

The on-line system was developed by the AIR/Palo Alto staff in consultation with the Stanford University Computer Center staff. The AIR staff determined that there was a need for such organization of the massive amounts of data now in existence on career decision making, if career development researchers are to be able to find appropriate data for testing their theories. Because of the need to find data that have combinations of attributes rather than a single attribute, an on-line system was needed in which index terms could be automatically combined. The SPIRES system was designed for exactly this purpose, and it was adjudged an ideal medium for the CRDSI. The actual SPIRES file definition was compiled by Karen Morgenstern, of the Stanford University Computer Center staff, in the spring of 1975.

Access to the System

In June, 1975 the CRDSI file was maintained by the AIR staff through an account with Stanford, and its use was through contact with Dr. Steven M. Jung or Dr. Don H. McLaughlin of the AIR staff. The details of the access method to the on-line system are described below.

1. Dial the Stanford Computer Center (415-328-4000).
2. Sign on (depends on user's terminal configuration; contact AIR staff for information).
3. Type "SPIRES"*
4. Type "SELECT CAREER DATA BANK"*

5. <perform the specified search through the index>**
6. Type "OUTPUT"* and hit the ATTN key after listing has started on the terminal.
7. Type "LIST OFFLINE BIN nnn"***
8. <repeat steps 5, 6, and 7 as often as required>
9. Type "SHOW COST"*
10. Type "EXIT"*
11. Type "LOGOFF CLEAR"*

*Do not type the quotation marks. Each line is typed in response to a question mark sent by the computer, and each line ends with a carriage return.

**The method for searching the index is described briefly in the next section and more fully in the SPIRES manual, available from the Stanford University Computer Center. The SPIRES system has the facility to EXPLAIN each of its terms on-line in response to the command "EXPLAIN"<term>.

***The listing of files is then printed out and placed in a designated bin in Polya Hall on the Stanford University campus; list on-line may be performed by not hitting the ATTN key in step 6.

Use of the System

1. The primary command to search the Careers Research Data Set Bank Index is the FIND command. To use it, type

"FIND <term> <value> <carriage return>"

where <term> is any one of the following:

Goal Records: CAREER

Simple Index: L, LOC, LOCATION

Simple Index: COUNTRY, EDUCATION, GENDER, OTHER RACE, RELIGION, RURAL

Simple Index: L, LONG, LONGITUDINAL

Simple Index: INFL, INFLUENCE, INFLUENCERS

Simple Index: DEC, DECIS, DECISIONS

Combined Index Terms:

ACCESS

INITIAL

SAMPLE

or type

"FIND <set> <carriage return> ",

where <set> consists of a list of <term> <value> pairs separated by logical operators "AND", "OR", or "AND NOT". If the <value> is a number, the term may be followed by ">" or "<".

Examples: (1) FIND EDUCATION HIGH SCHOOL STUDENTS

(2) FIND COUNTRY USA AND RACE BLACK AND NOT SAMPLE<1000

2. The value in a FIND command is a character-string that is either a word in the index or the first letters of a word in the index followed by a "#". For example, instead of "INFLUENCE EDUCATION" one can type "INFLUENCE EDU#".
3. The computer types back after the FIND command telling how many files that RESULT from the search. The same search can then be continued by adding more lines of <term> <value> pairs separated by logical operators. For example:

```

USER:      FIND COUNTRY USA
COMPUTER:  [Result: 75 careers]
           AND SAMPLE>1000
           [Result: 50 careers]
           AND GENDER FEMALE
           [Result: 5 careers]]
           AND RACE BLACK
           [Result: 0 careers, returning to previous step
           Result: 5 careers]

```

4. In order to find the possible values for any <term>, use the "BROWSE <term>" command. It will show typical values to be used with the term. If what is desired is the set of values close to a particular value, type "BROWSE <term> <value>". For example,

BROWSE INFL E

would give influencer values beginning with, approximately, D, E, and F.

5. The OUTPUT command has several options. Instead of outputting the whole record, one can OUTPUT NAME, CONTACT, TELEPHONE, or any combination of elements of the file, to avoid printing characteristics of the file already known. Elements of the file are listed below.

RECORD ELEMENTS

```

REC1
ACCESS
NAME
CONTACT
LINE1
LINE2
LINE3
LINE4
TELEPHONE
INVESTIGATOR
INITIAL
PUBLICATIONS
ABSTRACT
CHARACTERISTICS
CONDITION
VARIABLES

```

STRUCTURE: CHARACTERISTICS

```

SAMPLE
COUNTRY
RURAL
EDUCATION
GENDER
RACE
RELIGION
LONGITUDINAL
OTHER

```

STRUCTURE: CONDITION

```

FORMAT
QUESTIONNAIRE
CODEBOOK
AVAILABILITY
FEES

```

STRUCTURE: VARIABLES

```

INFLUENCERS
DECISIONS

```

OUTPUT CLEAN will remove some extraneous characters from the printout.

OUTPUT CLEAR or OUTPUT CONTINUE will either clear the area to be output to before outputting or will add the new output to the end of previous outputs.

The OUTPUT command will start an on-line listing at the terminal which can be interrupted by the break key ("ATTN"). Off-line listing is much more economical.

Any information OUTPUTed can be stored on-line for future use, in the WYLBUR system at the Stanford University Computer Center.

6. Adding to the CRDSI. New files can easily be added to the CRDSI. An example of the addition of a file is shown below. Addition of files is accomplished overnight.

```
?SPIRES
?SELECT CAREER DATA BANK
?COLLECT
1.?ADD;
2.?N= name ;
3.? .
: (remainder of file description text)
:
?;
?<ATTN>
?SAVE NEWREC ON SYS25
?BATCH NEWREC ON SYS25
```

To remove a file, type

```
REMOVE <REC1>
```

where <REC1> is the key number of the file to be removed.

To update a file with new information about it, type the same as for adding a file except:

type UPDATE <REC1> of the file to be updated, instead of ADD.